



**Government of India  
Department of Atomic Energy  
BHABHA ATOMIC RESEARCH CENTRE**



**Bhabha Atomic Research Centre Training Schools OCES/DGFS-2014)**  
**Information Brochure for Candidates from Engineering & Science**  
**Disciplines**

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### Training Schemes and Employment Description

BARC Training Schools provide two schemes of training to deserving candidates ambitious of pursuing a rewarding career in Nuclear Engineering and Technology. They are respectively called **Orientation Course for Engineering Graduates and Science Post-Graduates (OCES)** and **DAE Graduate Fellowship Scheme for Engineering Graduates and Physics Post-Graduates (DGFS)**.

**1. One-year Orientation Course for Engineering Graduates and Science Post-Graduates for the year 2014-2015 (OCES-2014)** will be conducted at BARC Training Schools situated at Mumbai, Kalpakkam, Indore and Hyderabad. [Table-1](#) lists Eligible Engineering Disciplines. [Table-2](#) lists the eligible disciplines and orientation of the training program at each of the Training Schools alongwith the placement information on successful completion of training. A Trainee Scientific Officer (TSO) who scores a minimum of 50% aggregate marks on completion of the training program is declared to have passed the course successfully. Successful TSOs will be posted as Scientific Officers in one of the following DAE units:

1. [Bhabha Atomic Research Centre \(BARC\), Mumbai\\*](#)
2. [Indira Gandhi Centre for Atomic Research \(IGCAR\), Kalpakkam](#)
3. [Raja Ramanna Centre for Advanced Technology \(RRCAT\), Indore](#)
4. [Variable Energy Cyclotron Centre \(VECC\), Kolkata](#)
5. [Heavy Water Board \(HWB\), Mumbai\\*](#)
6. [Nuclear Fuel Complex \(NFC\), Hyderabad\\*](#)
7. [Board of Radiation and Isotope Technology \(BRIT\), Mumbai\\*](#)
8. [Nuclear Power Corporation of India Ltd \(NPCIL\), Mumbai\\*](#)
9. [Bharatiya Nabhikiya Vidyut Nigam Ltd \(BHAVINI\), Kalpakkam\\*](#)
10. [Uranium Corporation of India Ltd \(UCIL\), Jaduguda\\*](#)
11. [Atomic Minerals Directorate of Exploration & Research \(AMD\), Hyderabad\\*](#)

\*These units have their head office at the indicated locations. Placement can be at the Head Office or at other facilities of these units located in different parts of India.

Appointment in DAE units shall be as a 'Group A' Gazetted Officer of the Government of India except in NPCIL, UCIL AND BHAVINI which are governed by the service rules of Corporations. Allocation of a successful OCES TSO to a DAE unit is done based on performance in the OCES program. Apart from the DAE units listed above, DAE reserves the right to place a small number of TSOs to any other unit under the Atomic Energy Commission (AEC) or the Atomic Energy Regulatory Board (AERB).

Performance above a specified threshold in course work at the Training School will entitle TSOs to a Post-Graduate Diploma or could earn them credits towards MTech/ MPhil/ PhD Programs of the [Homi Bhabha National Institute](#) (HBNI), a Deemed to be University.

**2. Two-year DAE Graduate Fellowship Scheme for Engineering Graduates and Physics Post-Graduates for the session beginning in July/August 2014 (DGFS-2014).** Under this scheme, Engineering Graduates and Physics Post-Graduates who are selected for the BARC Training School program and who also have secured admission for MTech/ MChemEngg in select institutes and specializations as listed in [Table-3](#), are paid stipend and tuition fee to pursue a MTech/ MChemEngg degree while retaining their employment in DAE. After successful completion of one-year course work at the institute, fellows undertake project work, which is assigned by DAE and supervised jointly by a DAE and an institute guide. On successful completion of M.Tech/ M.ChemEngg, they are posted as Scientific Officers in DAE. On joining, they are required to first undertake a four-month Orientation Course (OCDF) at the BARC Training School, Mumbai. The DGFS fellows are enrolled and posted in one of the following units of DAE:

a) BARC, Mumbai b) IGCAR, Kalpakkam c) RRCAT, Indore.

Allocation of a DGFS fellow to a DAE unit is done at the beginning of the M.Tech/ M.ChemEngg program based on Selection Interview performance.

**Stipend and Allowances during Training:** OCES Trainee Scientific Officers as well as DGFS fellows are paid stipend of Rs.20,000 per month during the period of their training and a one-time book allowance of Rs.10,000.

Boarding and Lodging in DAE/DGFS Institute Hostel/Guest House is mandatory during training.

**Selected candidates** are required to execute an agreement and a **Personal Indemnity Bond** to serve DAE for at least three years after completion of training. Indemnity Bond is for Rs.2,50,000 for OCES trainees and Rs.5,10,000 for DGFS fellows. **No third party surety is required.**

### **Grade And Pay Scale**

Appointment in all the units shall be as a **Scientific Officer (C)** in the **Pay Band-III Rs.15,600-39,100** with grade pay of **Rs.5,400**. Appointment will be at the beginning of the pay scale with OCES TSOs getting two or three increments depending on their performance during the OCES program and the DGFS Fellows getting three or four increments\* depending on their performance in M.Tech. / M.Chem.Engg. and four-month Orientation Course for DGFS Fellows (OCDF). Total Emoluments (with three increments) at the time of joining including Dearness Allowance, House Rent Allowance, Transport Allowance at the present Mumbai rate will be approximately **Rs.58,000/-**. In addition, other Allowances such as Leave Travel Concession by air, every year up to first eight years, Children's Education Allowance and an annual Professional Update Allowance are also payable. A comprehensive Contributory Health Service Scheme for employees and their dependent family members is also available at all DAE Units. Typically, the total emoluments, after three years of joining, will be **Rs.70,000/- p.m.**

\*DGFS Candidates whose performance is below a lower threshold will get zero increments.

**Incentive scheme :** With a view to promote excellence in all activities undertaken by the department,

officers are also eligible for additional incentives upto 30% of their basic pay subject to fulfillment of the targets set and their performance in the periodic appraisals carried out as per the norms.

### Selection Process

Selection to OCES/DGFS-2014 is a 2-step process: Screening to short-list candidates followed by Selection Interviews of the short-listed candidates. There is a separate selection process for each of the disciplines listed in Table-1 except for Radiological Safety Engineering (RSE), which is available only as an additional Training Scheme option to applicants belonging to Physics and Chemistry disciplines .

Screening for Selection Interview is based on two alternative methods:

(a) Online Test: It will be conducted in each of the seven Engineering disciplines listed in Table-1 other than Civil Engineering and in all the five science disciplines listed in Table-1 at nearly forty venues spread across India. The Online Screening Test for OCES/DGFS-2014 will be held in March, 2014. Travel Allowance is not paid for appearing in it. Candidates taking the Online Test in one of the seven engineering disciplines or one of the five science disciplines will be enabled to choose their centre as well as the date and time of the session in which they will appear for the Online Test, subject to availability.

(b) GATE Score: In this case, merit list in each discipline is prepared on the basis of a valid GATE-2013 or GATE-2014 Score of the applicants. Candidates in Civil Engineering will be short-listed for Selection Interviews only on the basis of a valid GATE-2013 or GATE-2014 Score.

c) Candidates, in all disciplines other than civil engineering, have the option of utilizing either one or both of the screening avenues detailed above. Cut-off GATE scores for screening into Selection Interviews will be decided only after the Online Test has concluded and so Candidates are advised to maximize their chances of being screened into the Selection Interview stage by availing both of the screening avenues detailed above. Applying on the basis of Online Test as well as a GATE-2013 or GATE-2014 score will maximize a candidate's chance of being short-listed for a Selection Interview.

d) Students graduating with a Masters Degree from University of Mumbai – Department of Atomic Energy Centre for Excellence in Basic Sciences (UM-DAE CBS) and National Institute of Science Education and Research (NISER), Bhubaneswar, and whose Cumulative Grade Performance Average (CGPA) is greater than or equal to 7.5 on a scale of 10 will directly be screened into the Selection Interview stage, provided they meet all other eligibility requirements of the OCES/DGFS-2014 program. Such candidates should first apply for OCES/DGFS-2014 program on the Online Application Portal and subsequently forward their details through the Directors of their institutes.

Selection Interviews of short-listed candidates in all disciplines except Geology and Geophysics will be conducted at the BARC Training School, Mumbai. Interviews in Geology and Geophysics will be held at the BARC Training School located at AMD, Hyderabad. Outstation applicants coming for Interview will be paid to-and-fro second-class sleeper train fare by shortest route or actual fare, whichever is less.

Probable period of Selection Interviews is during May-June, 2014. Candidates short-listed for Selection Interview will be informed via the Online Application Portal in the second week of April, 2014. Short-listed candidates will be able to choose an Interview slot, based on availability, on the Online Application Portals, in the second week of April, 2014 onwards. Final Selection is solely on the basis of performance in Selection Interview, subject to medical fitness.

**Other Academic Opportunities:** A merit list created out of the Interview Marks during the present recruitment will be also used in the future to offer admission to PhD or Diploma in Radiological Physics programs of BARC under the aegis of HBNI in the academic year 2014-15. Ph.D. students will be paid a Fellowship / Stipend for the duration of their academic programme. No permanent employment with DAE is assured to such Research Fellows.

## Eligibility Criteria

### A. Qualifying Degrees and Other Academic Requirements for OCES/DGFS-2014

a) **For Engineering Disciplines:** B.E. / B.Tech. / B.Sc. (Engineering) / 5-year Integrated M.Tech. / A.M.I.E. / A.M.I.E.T.E. / A.M.I.I.Ch.E. with a minimum of 60%\* aggregate marks in one of the engineering disciplines mentioned in Table-1. Applicants opting to be considered on the basis of a GATE score must have a valid GATE-2013 or GATE-2014 Score in the same engineering discipline as the qualifying degree discipline. Those having qualifying degree in branches like Aerospace, Automobile, Industrial Production, Reliability, Ceramics, Architecture, Geology, Mining, Bio-Medical Electronics/ Instruments, Communication, Information Technology, Master of Computer Applications, Dyes & Dye Intermediates, Electrochemical, Energy Systems, Oils & Fats, Paints & Varnishes, Petrochemicals, Plastics, Paper, Sugar Technology, Textiles, etc. are not eligible.

b) **For Physics Discipline :** M.Sc. in Physics / Applied Physics or B.E. / B.Tech. in Engineering Physics with a minimum of 60%\* aggregate marks in the qualifying degree. M. Sc. candidates (other than those with a five year integrated M.Sc.) must have a minimum of 60%\* aggregate marks in B.Sc. additionally. M.Sc. applicants should have Physics and Mathematics up to B.Sc. or at subsidiary and / or ancillary level in case of five year integrated M.Sc. Physics postgraduate applicants opting to be considered on the basis of a GATE Score should have a valid GATE-2013 or GATE-2014 Score in 'Physics'. Applicants having B.E. / B.Tech. (Engineering Physics) as qualifying degree can apply on the basis of a valid GATE-2013 or GATE-2014 Score either in 'Physics' or in 'Engineering Science'.

c) **For Chemistry Discipline :** M.Sc. in Chemistry with Physics up to B.Sc. or at subsidiary and / or ancillary level in case of five year integrated M.Sc. and Mathematics up to Std. XII, with minimum of 60%\* aggregate marks in M.Sc. as well as in B.Sc. Applicants opting to be considered on the basis of a GATE Score should have a valid GATE-2013 or GATE-2014 Score in 'Chemistry'.

d) **For Biosciences Discipline:** M.Sc. in Agriculture, Biochemistry, Microbiology, Molecular Biology, Biotechnology, Genetics, Botany, Zoology, Plant Science, Plant Breeding, Plant Pathology, Entomology, Food Technology, Animal Science, Life Sciences and Biosciences with a minimum of 60%\* aggregate marks in M.Sc. as well as in B.Sc.; or B.E. / B.Tech. / B.Sc. (Tech) only in Food Technology with minimum of 60%\* aggregate marks. M.Sc. applicants should have Physics or Chemistry or Biochemistry or Agriculture Chemistry at the B.Sc. stage or at subsidiary and / or ancillary level in case of five year integrated M.Sc. Applicants opting to be considered on the basis of a GATE Score should have a valid GATE-2013 or GATE-2014 Score in 'Life Sciences' or in 'Biotechnology'. Those having M.Sc. with specialisation in subjects like Fisheries, Horticulture, Forestry, Agronomy, Animal Husbandry, Marine Biology and Home Science etc and B.E. / B.Tech. / M.Tech. in Biotechnology / Genetic Engineering are not eligible.

e) **For Radiological Safety Engineering (RSE):** M.Sc. in Physics or Chemistry with Physics and Chemistry up to B.Sc. or at subsidiary and / or ancillary level in case of integrated M.Sc., and Mathematics up to Std. XII, with minimum of 60%\* aggregate marks in M. Sc. as well as in B. Sc.. Those having M.Sc. in Environmental Science are not eligible.

f) **For Geology Discipline:** M.Sc. or equivalent M.Tech. in Geology / Applied Geology / Applied Geochemistry with Geology at B. Sc. and at least two subjects out of Mathematics, Physics and Chemistry up to B.Sc. or at subsidiary and / or ancillary level in case of five year integrated M.Sc., with minimum of 60%\* aggregate marks in M.Sc. / M.Tech. as well as in B.Sc. Eligible candidates must have passed Mathematics in Std. XII. All applicants opting to be considered on the basis of a GATE Score should have a valid GATE-2013 or GATE-2014 Score in 'Geology and Geophysics'.

g) **For Geophysics Discipline :** M.Sc. in Geophysics / Applied Geophysics with Mathematics up to B.Sc. or at subsidiary and / or ancillary level in case of five year integrated M.Sc., with a minimum of 60%\*



aggregate marks in M.Sc. as well as in B.Sc. Applicants opting to be considered on the basis of a GATE Score should have a valid GATE-2013 or GATE-2014 Score in 'Geology and Geophysics'.

h) Those having M.Sc. (by research) or Ph.D. are not eligible.

\*A minimum of 60% marks means the marks as per the ordinances of the respective university. In case of candidates whose qualifying degree is A.M.I.E. / A.M.I.E.T.E. / A.M.I.I.Ch.E. 60%marks are required in each part of the qualifying examination, individually.

B. Admission to DGFS: Candidates having a qualifying degree in disciplines 21-29 or 41 and who meet the corresponding eligibility criteria listed above are eligible to apply for DGFS provided they secure admission for M.Tech. / M.Chem.Engg. starting in the academic year 2014 in select Institutes and in specialisations listed in Table-3. Confirmation of M.Tech. / M.Chem.Engg. admission should be communicated by July 4, 2014, Securing admission in one of the valid M. Tech. specializations at one of the DGFS Institutes along with Selection for OCES, does not guarantee the award of a DGFS Fellowship as DGFS is offered only to the most meritorious candidates as per Selection Interview performance.

C. Age Limit (Age as on August 1, 2014) a) General Category - 26 years, b) OBC - 29 years, c) SC / ST – 31 years, d) Dependents of those who died in the riots of 1984 (Dep1984) - 31 years, e) Persons domiciled in Kashmir Division of Jammu & Kashmir State from 01/01/1980 to 31/12/1989 (Dom Kashmir) – 31 years. Physically Challenged persons of all categories are eligible for age relaxation of 10 years.

D. Nationality: Applicant must be a citizen of India.

E. Applicants working in Central / State Government Units / PSUs / Aided Institutes should produce a No Objection Certificate (NOC) from their organization at the time of Selection Interview, failing which they may not be interviewed.

F. Application Fee: A non-refundable Application Fee of ` 250/- is chargeable from the male applicants belonging to General and OBC categories. Women candidates and the candidates belonging to SC / ST and Dependents of Defence Personnel Killed in Action (DODPKIA) and Physically Challenged candidates are exempted from payment of Application Fee.

Those, whose final results are awaited and / or are appearing for GATE-2014, can also apply. If selected, the mark-sheet of final result should be submitted by Nov 30, 2014 in case of OCES and as per the requirement of the concerned Institutes in case of DGFS.

### How to Apply

i) The candidates who wish to apply for screening on the basis of GATE score may do so based on a valid GATE-2013 or GATE-2014 score.

ii) Candidates wishing to apply on the basis of a GATE-2013 score must ensure that they enter the score valid in the academic year 2014-15.

iii) Those applying on the basis of a GATE-2014 score are required to fill in their GATE details after publishing of the GATE results but before March 28, 2014. They must however register and fill in the Online Application with all other details before February 14, 2014.

**Table-1: Eligible Disciplines and their Codes**

<b>Code</b>	<b>Discipline (to be selected in online application form)</b>	<b>Subject in the Qualifying Degree as awarded by the University / Institute of the Candidate</b>	<b>GATE Paper (for screening through GATE channel)</b>
ME	Mechanical Engineering	Mechanical Engineering	Mechanical Engineering
CH	Chemical Engineering	Chemical Engineering	Chemical Engineering
MT	Metallurgical Engineering	Metallurgical Engineering	Metallurgical Engineering
EE	Electrical Engineering	Electrical Engineering, or Electrical & Electronics Engineering	Electrical Engineering
EC	Electronics Engineering	Electronics Engineering, or Electronics and Communication, or Electronics and Control, or Electrical and Electronics Engineering, or Electronics and Instrumentation	Electronics and Communication Engineering
CS	Computer Science	Computer Science	Computer Science and Information Technology
IN	Instrumentation Engineering	Instrumentation Engineering, or Electronics and Instrumentation	Instrumentation Engineering
CE	Civil Engineering	Civil Engineering	Civil Engineering
PH	Physics	M. Sc. in Physics/Applied Physics Or B.E./B.Tech. in Engineering Physics	M.Sc. applicants must take GATE in 'Physics' whereas applicants with B.E./B.Tech. in Engineering Physics may take GATE either in 'Physics' or in 'Engineering Science'
CY	Chemistry	M. Sc. in Chemistry	'Chemistry'
BS	Bioscience	M. Sc. in Agriculture, Biochemistry, Microbiology, Molecular Biology, Biotechnology, Genetics, Botany, Zoology, Plant Science, Plant Breeding, Plant Pathology, Entomology, Food Technology, Animal Science, Life Sciences and Biosciences Or B.E./B.Tech./B.Sc.(Tech.) in Food Technology	'Life Sciences' or 'Biotechnology'
GE	Geology	M. Sc. or equivalent M. Tech. in Geology / Applied Geology / Applied Geochemistry	'Geology & Geophysics'
GP	Geophysics	M. Sc. in Geophysics / Applied Geophysics	'Geology & Geophysics'
RSE	Radiological Safety Engineering	This is not a separate discipline but an additional Training Scheme option at the BARC Training School, Mumbai for M.Sc. applicants in Physics or Chemistry	'Physics' or 'Chemistry' as per the degree discipline of the applicant.

**Table-2: Training Schools, Eligible Disciplines, Orientation of Training and Probable placements**

Training School	Disciplines (refer Table-1)	Orientation of Training	Probable Placement after Training
BARC, Mumbai (Since 1957)	All Disciplines	-Engineering design, development, operation and maintenance of nuclear reactors. - Research in frontier areas of Basic and Engineering Sciences.	Mainly in BARC
IGCAR, Kalpakkam (Since 2006)	ME, CH, EC, PH,CY	-R&D and Engineering related to Fast Breeder Reactor programme - Research in frontier areas of Basic and Engineering Sciences.	Mainly in IGCAR
RRCAT, Indore (Since 2000)	EE, EC,PH	R&D in Engineering and Science related to lasers, accelerators, plasma physics, cryogenics and superconductivity.	Mainly in RRCAT
NFC-HWB, Hyderabad (Since 2001)	ME, CH, EE, EC	Operation & Maintenance and Engineering related to Nuclear Fuel Facilities & production plants for production of Heavy Water to support our Nuclear Power Program	Mainly in NFC & HWB
AMD, Hyderabad (Since 2010)	GE & GP	Exploration Techniques for Uranium and other Atomic Minerals and related R&D activities	Mainly in AMD

**Table-3: M.Tech./M.Chem.Engg. Specialisations and Admissible Pre- M.Tech./M.Chem.Engg. Degree-Disciplines for DGFS**

Relevant M.Tech./M.Chem.Engg. Program or Name of Dept/ Centre at the M.Tech./ M.Chem.Engg. Institute	Pre-M.Tech./M.Chem.Engg. Degree (Disciplines)	Institutes**
Mechanical Engineering	BE (Mechanical)	All but ICT
Cryogenic	BE (Mechanical)	Kh
Chemical Engineering	BE (Chemical)	All but Rkl
Applied Mechanics	BE (Civil/ Mechanical)	M
Civil Engineering	BE (Civil)	All but Rkl, ICT
Earthquake Engineering	BE (Civil)	K, R
Nuclear Hydrology	BE (Civil/ Chemical)	R
Metallurgical Engineering, Materials Science/ Engineering	BE (Metallurgy/ Chemical)	All but G, ICT
Electrical Engineering	BE (Electrical/ Electronics)	All but G, ICT
Reliability Engineering, Systems & Control Engineering, Energy Systems	BE (Mechanical/ Electrical/ Chemical)	B, D, Kh, R



Power/ Communication/ Control Engg, Integrated Electronics & Circuits	BE (Electrical/ Electronics)	D, G, R
Instrumentation	BE (Electrical/ Electronics/ Instrumentation)	Kh, M, R
Computer Science, Engineering & Technology	BE (Computer/ Electrical/ Electronics)	All but Rkl, Var, ICT
Applied Optics, Lasers & Optoelectronics	BE (Electronics) M.Sc. (Phy/ App Phy)	D
Nuclear Engineering & Technology	BE (Mechanical/ Chemical/ Electrical/ Electronics)	K
Solid State Materials/ Electronic Materials	BE (Electrical/ Electronics) M.Sc. (Phy/ App Phy)	D, R
Electronics Engineering, Electronics and Communication Engineering	BE (Electrical/Electronics)	Rkl & Var

**\*\* Institutes where specified M.Tech./ M.Chem.Engg. courses are offered under this scheme: B = IIT Bombay; D = IIT Delhi; G=IIT Guwahati; K = IIT Kanpur; Kh = IIT Kharagpur; M = IIT Madras; R = IIT Roorkee; Rkl = NIT Rourkela; Var = IIT-(BHU)- Varanasi; ICT = Institute of Chemical Technology, ICT, Mumbai. Number of DGFS Fellows selected in each approved M.Tech. / M.Chem.Engg. Specialisation at the Institutes under the DGFS scheme will depend upon the requirements of DAE.**

### Important Dates

Launching of Online Application Portal for OCES/DGFS-2014	15th January, 2014
Last date for Online Application	14th February, 2014
Last date for candidates to upload their GATE score	28th March, 2014
Online Test	19th - 24th March, 2014
Display of List of candidates short-listed for Interview	2nd week of April, 2014
Availability based option to select Interview Slot for qualified candidates	2nd week of April, 2014
Selection Interviews	19th May - 19th June, 2014
Display of List of Candidates finally selected for OCES-2014 on Online Portal	26th June, 2014
Last Date for Selected OCES-2014 Candidates desirous of DGFS to give details of M.Tech/ M.Chem.Engg. admission in a DGFS institute	4th July, 2014
Declaration of List of Persons Selected for DGFS-2014	2nd week of July, 2014

#### Note :

The dates will be announced shortly. Candidates are advised to check this website periodically for more information on dates.

Candidates must carry a hardcopy of the admit card and other documents (as mentioned on the admit card) while reporting for the examination.