



Government of India
Department of Atomic Energy
BHABHA ATOMIC RESEARCH CENTRE



**Recruitment of Scientific Officers in the
Department of Atomic Energy
(Group-A Post of Government of India)
through the Bhabha Atomic Research Centre
Training Schools**



**Information Brochure for Candidates from
Engineering & Science Disciplines: OCES/DGFS-2018**

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1. Training Schemes and Employment Description

BARC Training Schools provide two Training Schemes to deserving candidates ambitious of pursuing a rewarding career in **Nuclear Science, Engineering and Technology** and

- a. who would relish challenges in **frontier areas of Science & Technology**,
- b. who would like to be part of an expanding program of **Nuclear Power / Research Reactors, Accelerators and Nuclear Fuel Cycle Technologies**, and
- c. who would enjoy pursuing innovative research in frontier areas of **Engineering, Physics, Chemistry, Biosciences, Geology and Geophysics**.

They are respectively called **Orientation Course for Engineering Graduates and Science Postgraduates (OCES)** and **DAE Graduate Fellowship Scheme for Engineering Graduates and Physics Postgraduates (DGFS)**.

Successful completion of the Training Schemes guarantees employment as Scientific Officer 'C' in one of the DAE units or Atomic Energy Regulatory Board with attractive career progression opportunities up to the highest echelons.

DAE strives to have a workforce which reflects gender balance and woman candidates are encouraged to apply.

A. One-year Orientation Course for Engineering Graduates and Science Postgraduates for the academic year 2018-2019 (OCES-2018) will be conducted at the **five BARC Training Schools** situated at **Mumbai, Kalpakkam, Indore and Hyderabad**. Tables-1a & 1b list Eligible Disciplines for the OCES program. Table-2 lists the Eligible Disciplines and orientation of the Training

Program at each of the Training Schools. 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:

- a. Bhabha Atomic Research Centre (BARC), Mumbai*
- b. Indira Gandhi Centre for Atomic Research (IGCAR), Kalpakkam
- c. Raja Ramanna Centre for Advanced Technology (RRCAT), Indore
- d. Variable Energy Cyclotron Centre (VECC), Kolkata
- e. Heavy Water Board (HWB), Mumbai*
- f. Nuclear Fuel Complex (NFC), Hyderabad*
- g. Board of Radiation and Isotope Technology (BRIT), Mumbai*
- h. Nuclear Power Corporation of India Ltd (NPCIL), Mumbai*
- i. Bharatiya Nabhikiya Vidyut Nigam Ltd (BHAVINI), Kalpakkam*
- j. Uranium Corporation of India Ltd (UCIL), Jaduguda*
- k. Atomic Minerals Directorate for Exploration & Research (AMD), Hyderabad*
- l. Directorate of Construction, Services & Estate Management (DCSEM), Mumbai*.

*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.

Allocation of a successful OCES TSO to a DAE unit is carried out based on the needs of DAE's programs and the TSO's performance in the OCES program. DAE reserves the right to place TSOs in any of its other units and the Atomic Energy Regulatory Board (AERB) also.

Appointment in DAE units shall be as a 'Group A' Gazetted Officer of the Government of India except in BHAVINI, NPCIL and UCIL which are governed by the service rules of Corporations.

Trainee Scientific Officers who successfully complete the Training Program and whose performance meets a minimum eligibility criterion are allowed to enroll for **M.Tech. / M.Phil. in Homi Bhabha National Institute (HBNI)**, a Deemed to be University. Those

not desirous of pursuing M.Tech. / M.Phil. are entitled to a **Post-Graduate Diploma of HBNI.**

B. Two-year DAE Graduate Fellowship Scheme for Engineering Graduates and Physics Postgraduates for the academic session beginning in July/August 2018 (DGFS-2018). Under this scheme, **Engineering Graduates and Physics Postgraduates** who have **excelled in the Selection Interviews** for the BARC Training Schools' programs and who **have also independently secured admission for M. Tech. / M. Chem. Engg. in select Institutes and specializations** as listed in Table-3, are paid stipend and tuition fee to pursue a M. Tech. / M. Chem. Engg. degree while retaining their employment in DAE.

After successful completion of one-year course work at the Institute, DGFS 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. Chem. Engg. DGFS Fellows are posted as Scientific Officers in DAE. Appointment in DAE units shall be as a **'Group A' Gazetted Officer of the Government of India.**

On joining, they are required to first undertake a four-month Orientation Course for DGFS Fellows (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

**Placement can be at any of the BARC facilities located in different parts of India.

Allocation of a DGFS Fellow to a DAE unit is done at the beginning of the M. Tech. / M. Chem. Engg. program based on the needs of DAE's programs and their Selection Interview merit.

C. Stipend and Allowances during Training: OCES TSOs and DGFS Fellows are paid a stipend of ₹ 35,000 per month during the period of their Training and a one-time book allowance of ₹ 10,000. DGFS Fellows are reimbursed the tuition fee for M.Tech. / M.Chem.Engg. and are additionally paid a one-time Contingency Grant of ₹ 25,000 to meet M.Tech. / M.Chem.Engg. project related expenses.

Boarding and Lodging in DAE Hostel is mandatory for OCES TSOs during the Training period. Boarding and Lodging in DGFS Institute hostel is mandatory for DGFS Fellows during M. Tech. / M. Chem. Engg. program.

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 ₹ 4,30,000 for OCES TSOs and ₹ 8,70,000 for DGFS Fellows^{***}. **No third party surety is required.**

^{***}The Bond amount for DGFS Fellows pursuing M. Tech. / M. Chem. Engg. at certain DGFS Institutes may be different, depending on the tuition fee at the concerned Institute.

2. Grade and Pay Scale

Appointment in all the units shall be as a Scientific Officer 'C' (SO/C) **in the Level 10 - ₹ 56,100 of the 7th Central Pay Commission Pay Matrix.**

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).

#DGFS Fellows whose performance in the M.Tech. / M.Chem.Engg. and O CDF programs is below a specified threshold will get zero increments.

Monthly emoluments (with three increments) at the time of joining including Dearness Allowance, House Rent Allowance and Transport Allowance at the present Mumbai rate, will be approximately **₹ 84,000.**

In addition, other Allowances such as **Leave Travel Concession by air**, every year up to first eight years (subject to conditions) and once in two years thereafter, **Children's Education Allowance** and **Professional Update Allowance** are also payable.

A comprehensive **Contributory Health Service Scheme** or equivalent for employees and their dependent family members is also available at all DAE Units.

3. Selection Process

Selection to OCES / DGFS – 2018 is a two-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 Tables-1a & 1b **except for Radiological Safety Engineering (RSE) which is not a separate discipline but an additional Training Scheme option for applicants in Nuclear Engineering, Physics and Chemistry disciplines. There is no separate Training Scheme called 'Nuclear Engineering' and selected candidates belonging to 'Nuclear Engineering' (NE) will be allotted RSE or Mechanical or Chemical as their Training Scheme.**

A. Screening for Selection Interviews is based on two alternative methods:

(a) On the basis of Online Examination:

- i. Online Examination will be conducted in March-April, 2018 in each of the nine Engineering disciplines and five Science disciplines in more than forty cities spread across India.
- ii. Travel Allowance is not paid for appearing in it.
- iii. Candidates who register for the Online Examination will be allotted one of their three preferred examination centres, subject to availability. Allocation of slot to candidates for taking the Online Examination will be done on a first come, first served basis.
- iv. All candidates appearing for the BARC Online Examination will be awarded a BARC Online Examination Score as per the methodology outlined in Annexure-1. Shortlisting of these candidates for Selection Interview will be based on this Online Examination Score.

(b) On the basis of GATE score:

Candidates will be screened in for Selection Interview on the basis of a valid GATE-2017 or GATE-2018 score **in the applicable GATE subject. Applicants with a degree in 'Nuclear Engineering' will be screened in only on the basis of Online Examination to be conducted in March, 2018.**

Candidates may note the following:

1. At the time of application, candidates can choose **any one or both** of the above screening options. As the cutoff GATE scores for screening in to Selection Interviews will be finalized only after the conclusion of the Online Examination, candidates are advised to maximize their chance of being screened in to the Selection Interview by **availing both the Screening Channels (GATE score as well as Online Examination)** detailed above.
2. Candidates who opt for screening through **Online Examination** will be allotted an examination centre of their choice, subject to availability. Alerts by email as well as SMS will be sent to all candidates who have opted for the Online Examination on their registered email addresses and mobile numbers as well as announced on this website, after allotment of examination slots. Examination slots will be allocated on first come, first served basis, subject to availability. **Candidates are advised to visit this website regularly for updates regarding this.**
3. The candidates who have opted for screening **only on the basis of a GATE Score will not be allotted an examination slot** for the Online Examination.

Students graduated/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 in the academic year 2016-2017/2017-2018, 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-2018 program. It is to be noted that this option of being screened in based on CGPA can be exercised only once. Such candidates should first submit their application for the OCES/DGFS-2018 program on the Online Application Portal and subsequently forward their details through the Directors of their institutes.

Other Opportunities: Candidates applying for OCES/DGFS-2018 may also be considered for direct recruitment in Electronics Corporation of India Ltd. (ECIL). Such candidates will be governed by stipendiary norms of ECIL and terms and service conditions of ECIL on absorption. A merit list created out of the Selection Interview Marks may also be

used to offer admission to M.Sc. (Engg.) / Ph.D. or Diploma in Radiological Physics programs of BARC under the aegis of HBNI in the academic year 2018-19. Students admitted to the M.Sc. (Engg.) / Ph.D. program will be paid a Fellowship / Stipend for the duration of their academic program. No permanent employment with DAE is assured to such Research Fellows.

B. Selection Interviews:

Selection Interviews of short-listed candidates will be conducted in Mumbai (in all disciplines except Geology and Geophysics) and Hyderabad (in Geology and Geophysics). Outstation applicants will be paid **two-way normal AC-III tier train fare**, from their registered residential address, by shortest route or actual fare whichever is less.

Probable period of Selection Interviews is during May-June, 2018. Short-listed candidates will be able to choose an Interview slot based on availability in April, 2018. Alerts by email as well as SMS will be sent to all candidates who have been short-listed for Selection Interview on their registered email addresses and mobile numbers as well as announced on this website, prior to commencement of the Interview slot booking process. **Candidates are advised to visit this website regularly for updates regarding this.**

Final Selection for the OCES/DGFS-2018 programs will be based solely on performance in Selection Interview, subject to medical fitness. A list of provisionally (subject to medical fitness) selected candidates will be displayed on this website in the last week of June, 2018. The selected candidates will also be informed about their Selection by email and SMS.

Candidates selected for OCES-2018, who have obtained admission for applicable M. Tech. / M. Chem. Engg. programs in DGFS Institutes and who wish to be considered for DGFS, must provide details of their M. Tech. / M. Chem. Engg. admission by July 4, 2018.

4. Eligibility Criteria

A. Qualifying Degrees and Other Academic Requirements for OCES/DGFS-2018:

a) For Engineering Disciplines (codes ME, CH, MT, EE, EC, CS, IN, CE, NE as per Table-1a):

- i.** B.E. / B.Tech. / B.Sc. (Engineering) / 5-year Integrated M.Tech. with a minimum of 60%* aggregate marks in one of the engineering disciplines mentioned in Table-1a.
- ii.** It is to be noted that there is no Training discipline called 'Nuclear Engineering' and applicants with a degree in 'Nuclear Engineering' will be allotted RSE at the the BARC Training School, Mumbai or ME or CH at the BARC Training Schools at Mumbai, Kalpakkam or NFC-Hyderabad, as their Training Scheme.
- iii.** Applicants opting to be considered on the basis of a GATE Score must have a valid GATE-2017 or GATE-2018 **Score in the same engineering discipline as the qualifying degree discipline. The applicable GATE subjects are listed in Table-1a.**
- iv.** **Those having qualifying degree in branches like Aerospace, Automobile, Automotive, Industrial Production, Automative, 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, Mechatronics, etc. are not eligible.**

b) For Physics Discipline (code PH):

- i.** M.Sc. in Physics / Applied Physics with Physics and Mathematics at B.Sc. or at subsidiary and/or ancillary level in case of 5-year integrated M.Sc. or B.E./B.Tech. in Engineering Physics with a minimum of 60%* aggregate marks in the qualifying degree.
- ii.** M. Sc. candidates (other than those applying with a 5-year integrated M.Sc. degree) must additionally have a minimum of 60%* aggregate marks in B.Sc.
- iii.** Physics postgraduate applicants opting to be considered on the basis of a GATE Score should have a valid GATE-2017 or GATE-2018 Score in 'Physics'.

iv. Applicants having B.E./ B.Tech. in 'Engineering Physics' as qualifying degree can apply on the basis of a valid GATE-2017 or GATE-2018 Score either in 'Physics' or in 'Engineering Sciences'.

c) For Chemistry Discipline (code CY):

- i. M.Sc. in Chemistry with Physics up to B.Sc. or at subsidiary and / or ancillary level in case of 5-year integrated M.Sc. and Mathematics at Std. XII or at B.Sc. or at subsidiary and / or ancillary level in case of 5-year integrated M.Sc., with a minimum of 60%* aggregate marks in M.Sc.
- ii. All candidates (other than those applying with a 5-year integrated M.Sc. degree) must additionally have a minimum of 60%* aggregate marks in B.Sc.
- iii. Applicants opting to be considered on the basis of a GATE Score should have a valid GATE-2017 or GATE-2018 Score in 'Chemistry'.

d) For Biosciences Discipline (code BS):

- i. 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, Biomedical Sciences and Biosciences with a minimum of 60%* aggregate marks in M.Sc. as well as in B.Sc. (except for 5-year integrated M.Sc.); or B.E. / B.Tech. / B.Sc. (Tech) only in Food Technology with minimum of 60%* aggregate marks.
- ii. M.Sc. applicants should have studied one out of Physics or Chemistry or Biochemistry or Agriculture Chemistry as a subject at the B.Sc. stage or at subsidiary and / or ancillary level in case of 5- year integrated M.Sc.
- iii. Applicants opting to be considered on the basis of a GATE Score should have a valid GATE-2017 or GATE-2018 Score in 'Life Sciences' or in 'Biotechnology'.
- iv. **Those having M.Sc. with specialization in subjects like Fisheries, Horticulture, Forestry, Agronomy, Animal Husbandry, Marine Biology, Bioanalytical Sciences, Bioinformatics and Home Science etc and B.E. / B.Tech. / M.Tech. in Biotechnology / Genetic Engineering / Biomedical Engineering are not eligible.**

e) For Radiological Safety Engineering (code RSE):

- i. B.E. / B.Tech. / B.Sc.(Engg.) / 5-year Integrated M.Tech. in Nuclear Engineering / Nuclear Technology / Nuclear Science & Technology with minimum of 60%*

aggregate marks or M.Sc. in Physics or Chemistry with a minimum of 60%* aggregate marks with Physics and Chemistry up to B.Sc. or at subsidiary and/or ancillary level in case of 5-year integrated M.Sc.

- ii. Eligible M.Sc. candidates must have passed in Mathematics at Std. XII or at B.Sc. or at subsidiary and / or ancillary level in case of 5-year integrated M.Sc.
- iii. All science postgraduate candidates (other than those applying with a five-year integrated M.Sc. degree) must additionally have a minimum of 60%* aggregate marks in B. Sc.

f) For Geology Discipline (Code GE):

- i. M.Sc. or equivalent M.Tech. in Geology / Applied Geology / Applied Geochemistry with Geology at B. Sc. or at subsidiary and / or ancillary level in case of 5-year integrated M.Sc., or 5-year integrated M.Tech. in Geological Technology.
- ii. Eligible candidates must have two subjects out of Mathematics, Physics and Chemistry up to B.Sc. or at subsidiary and/or ancillary level in case of 5-year integrated M.Sc./5-year integrated M.Tech., with a minimum of 60%* aggregate marks in M.Sc./M.Tech.
- iii. All eligible candidates (other than those applying with a 5-year integrated M.Sc. / M.Tech. degree) must have a minimum of 60%* aggregate marks in B. Sc. also.
- iv. Additionally, eligible candidates must have passed Mathematics in Std. XII.
- v. All applicants opting to be considered on the basis of a GATE Score should have a valid GATE-2017 or GATE-2018 Score in 'Geology and Geophysics'.

g) For Geophysics Discipline (Code GP):

- i. M.Sc. in Geophysics/Applied Geophysics or 5-year integrated M.Tech. in Geophysical Technology.
- ii. Eligible candidates must have Mathematics up to B.Sc. or at subsidiary and/or ancillary level in case of 5-year integrated M.Sc./M.Tech., with a minimum of 60%* aggregate marks in M.Sc./M.Tech.
- iii. All eligible candidates (other than those applying with a 5-year integrated M.Sc./M.Tech. degree) must have a minimum of 60%* aggregate marks in B. Sc.

- iv. Applicants opting to be considered on the basis of a GATE Score should have a valid GATE-2017 or GATE-2018 Score in 'Geology and Geophysics'.

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

***A minimum of 60% aggregate marks means the marks as per the ordinances of the respective university.**

B. Admission to DGFS:

- i. Candidates having a qualifying degree in the Engineering disciplines (ME, CH, MT, EE, EC, CS, IN & CE) or in Physics (PH) and who meet the corresponding eligibility criteria listed above are eligible to apply for DGFS provided they are selected for OCES-2018 and additionally secure admission for M.Tech./M.Chem.Engg. starting in the academic year 2018 in select Institutes and in specializations listed in Table-3.
- ii. Confirmation of M.Tech. / M.Chem.Engg. admission should be communicated by **July 4, 2018.**
- iii. **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 as per the needs of DAE's programs and only to the most meritorious candidates as per Selection Interview performance.**

C. Age Limit (Age as on August 1, 2018):

- 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 or State Governments or their 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:

- i. A non-refundable Application Fee of ₹ 500 is chargeable from the male applicants belonging to General and OBC categories.**
- ii. Woman candidates, candidates belonging to SC/ST, Dependents of Defence Personnel Killed in Action (DODPKIA) and Physically Challenged candidates are exempted from payment of Application Fee.**

Candidates awaiting final results and/or due to appear for GATE-2018, may also apply.

If selected, candidates who are eligible in all other respects but are awaiting final results will be allowed to commence course work. However, retention of these candidates in the OCES or DGFS programs is subject to the mark-sheet of their final result, which meets the eligibility requirements of the OCES/ DGFS-2018 program, being submitted by Nov 30, 2018 in case of OCES TSOs and as per the requirement of the concerned DGFS Institutes in the case of DGFS Fellows.

5. How to Apply

ONLY ONLINE APPLICATIONS WILL BE ACCEPTED.

1. Candidates have to fill up the Online Application form provided on this website.
2. Candidates need to register through '**Apply Online**' link by providing essential information like name, mother's name, date of birth, e-mail id and a preferred login id. ***It may be noted that the details provided at this stage cannot be modified later on, and hence the candidates are advised to be careful in entering the details.***
3. Upon successful registration, the candidates can activate their account either through the OTP sent to their registered mobile number or through the Activation link sent to the candidates' registered email id.
4. Once the candidate's account is activated, he/she can subsequently log in multiple times through '**Candidate's Login**' link to fill in the Online Application form.
5. While filling the form, the candidates are required to upload their recent passport sized photograph (4.5x3.5cm) in JPG format (of size not more than 50 kb) and a scanned copy of their signature (2x4.5cm, in JPG format with size not exceeding 20 kb).
6. After filling in all the required details, the candidates who are required to pay the Application Fee (₹ 500 plus applicable bank charges) may make Online payment using netbanking / debit card / credit card. On clicking on the "Make Payment" button in the payment page, the candidate is taken to the SBI Payment Gateway through which they can pay the application fee using any of the payment modes listed above. If the payment is successful, the candidates can proceed to final submission stage and complete their application. **The candidates must make the payment of Application Fee only once and no**

requests for refund of Application Fee will be entertained from any candidate.

7. **Finally, the candidates need to submit the filled form.** Please note that no modifications / alterations would be permitted in the application form after final submission. Hence the candidates are advised to verify the correctness and adequacy of the information filled by them before the final submission. **It is to be noted that only applications where 'Final Submission' process has been completed before the last date will be considered valid applications.**

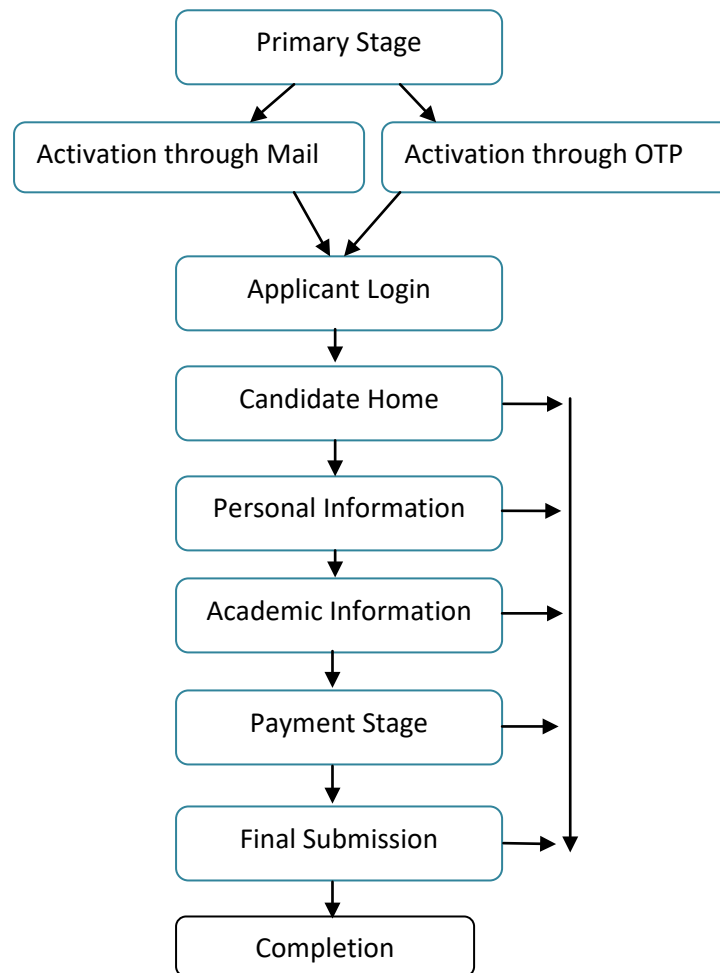
Candidates have the following options available:

- i. “Final Submission” – On clicking this button, the details of the candidate are submitted and a Registration Number is generated for the candidate.
 - ii. If the candidate wishes to do some modification before final submission, he / she is advised to click the “Home” link provided on the top of the page. **However, it must be noted that the candidate must click the “Final Submission” button after the modification.**
8. A unique Registration Number will be generated for every candidate **who has completed the Final Submission process**, which must be used for all future correspondence.
 9. The candidates who wish to apply for screening on the basis of GATE-2018 Score are required to fill in their GATE details after declaration of the GATE results, whereas those wishing to apply on the basis of a GATE-2017 Score must upload their GATE Score during the Application Process. **Applicants with a GATE-2018 Score must register and fill in all details relevant to the admission process, prior to the declaration of GATE-2018 results, and before the last date (February 4, 2018) for the same. No new applications, on the basis of a GATE score or otherwise, will be accepted after**

February 4, 2018. Once the GATE 2018 results are declared, these candidates are allowed to upload their GATE score and GATE marks on this portal for a limited period of time. Candidates must enter their GATE score and GATE marks carefully.

Note: Candidates need not send any documents such as proof of age, proof of category, proof of application fee payment etc. or hard copy application.

BARC – DGFS/OCES -2018 Flow chart & Instructions for Registration



Note: From Candidate Home, candidate can proceed to each successive stage of registration. After completion of each stage, he can also switch over and edit the previous stages, till the final submission is made.

Once Final Submission stage is completed, no further modification is possible.

Process & Instructions:

Application Procedure: 7 Simple Steps (Primary Stage, Activation, Personal Information, Academic Information, Screening information, Payment Stage, Final Submission) to be followed to apply online

Step 1:	Primary stage: In this first stage of registration, the candidates need to choose the Applied Discipline (ie. Examination Discipline) and Qualifying Degree. The candidate also must enter other primary details like: Name, Mother's Name, DOB, Email ID, Mobile number. The candidate should create a Unique Login Id and Password (These credentials will be used to proceed to the next stage).
Step 2:	Activation: After completion of Primary stage, an OTP will be sent to candidate's registered mobile number and an Activation link will be sent to the registered E-mail id. Candidate can activate his application either by clicking that link or by using the "Activate through OTP" option in the portal. The candidate can proceed further after the activation of application.
Step 3:	Personal Information: After activation of application, the candidate can login through 'Application Login' with the registered User id and password. After logging in, the candidate should fill his Personal details like: Category, Address, etc and also do Photo & Signature Upload.
Step 4:	Academic Information: In this section, the candidate has to enter his Academic details like: 10 th , 12 th , relevant degree details and Additional Qualifications (if applicable).
Step 5:	Screening Information: After completion of Academic Information, the candidate can proceed to the next stage where he/she can choose the channel through which he/she would prefer to be considered, ie. Online examination or GATE. A candidate can opt for both channels also. In this stage, the candidate also can furnish his Examination centre choices. If the

	<p>candidate has chosen GATE as the screening channel, he has to enter the GATE score and upload his Score card while applying in the case of candidates applying with a GATE-2017 score and by April 2, 2018 in the case of candidates applying on the basis of a GATE-2018 score.</p> <p>Note: If the candidate enters his GATE score wrongly, he may not be shortlisted based on GATE screening channel. In GATE score column, the candidate has to enter his score out of 1000.</p>
Step 6:	<p>Payment:</p> <p>Candidates who are required to make an Application Fee Payment can pay the fees through the URL given in the Payment Stage. Payment can be done only through SBI Payment Gateway. There is no refund for candidates who make multiple payment.</p> <p>Candidates, who are exempted from paying fees can directly proceed to the Final Submission.</p>
Step 7:	<p>Final Submission:</p> <p>Once all the other stages are completed, the candidate should make the Final Submission to complete the Registration. The candidate should make sure that all the information entered in the previous stages are correct, as no modification in application can be made after making Final Submission. After this stage, a Registration Number will be generated for the candidate. Candidates will be able to view and print their application also.</p>

6. Eligible Disciplines

(Table 1a)

CODE	Discipline to be Selected in Online Application Form under which candidate wishes to apply	Eligible Subject/Discipline in B.E./B.Tech./B.Sc. (Engg.)/5-Year Integrated M. Tech. as awarded by University / Institute	GATE Subject
ME	Mechanical	Mechanical Engineering	Mechanical Engineering
CH	Chemical	Chemical Engineering	Chemical Engineering
MT	Metallurgical	Metallurgy / Metallurgy & Materials Engineering / Metallurgy & Materials Science / Metallurgical Engineering / Metallurgical & Materials Engineering / Metallurgical Engineering & Materials Science / Materials Science & Engineering	Metallurgical Engineering
EE	Electrical	Electrical Engineering / Electrical & Electronics Engineering	Electrical Engineering
EC	Electronics	Electrical Engg. / Electronics Engg. / Electronics & Communication Engg. / Electronics & Controls Engg. / Electrical & Electronics Engg. / Electronics & Instrumentation Engg.	Electronics & Communication Engg.
CS	Computer Science	Computer Science / Computer Engineering	Computer Science & Information Technology
IN	Instrumentation	Instrumentation Engg. / Electronics & Instrumentation Engg.	Instrumentation Engineering
CE	Civil	Civil Engineering	Civil Engineering
NE	Nuclear Engineering*	Nuclear Engineering / Nuclear Technology / Nuclear Science & Technology	NOT ELIGIBLE through GATE

* Candidates with B.E. / B.Tech. / B.Sc.(Engg.) / 5-year Integrated M.Tech in 'Nuclear Engineering' / 'Nuclear Technology' / 'Nuclear Science & Technology' would be considered for RSE Training Scheme at the BARC Training School, Mumbai and for 'Mechanical' and 'Chemical' Training Schemes at the BARC Training Schools in Mumbai, Kalpakkam and NFC-Hyderabad.

(Table 1b)

CODE	Discipline to be Selected in Online Application Form under which candidate wishes to apply	Eligible Degree Subject/Discipline as awarded by University / Institute	GATE Subject
PH	Physics†	M. Sc. In Physics / Applied Physics	Physics
		B.E./B.Tech. In Engineering Physics	Physics / Engineering Sciences
CY	Chemistry‡	M. Sc. In Chemistry	Chemistry
BS	Biosciences	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, Biomedical Sciences and Biosciences	Life Sciences / Biotechnology
		B.E./B.Tech./B.Sc.(Tech.) in Food Technology	
RSE	Radiological Safety Engineering#	B.E./B.Tech./B.Sc. (Engg.)/5-year integrated M. Tech. in Nuclear Engg./ Nuclear Technology/ Nuclear Science & Technology	NOT ELIGIBLE through GATE
		M.Sc. In Physics / Applied Physics	Physics
		M.Sc. In Chemistry	Chemistry
GE	Geology	M.Sc. or equivalent M.Tech. in Geology / Applied Geology / Applied Geochemistry or 5-year integrated M.Tech. in Geological Technology.	Geology & Geophysics
GP	Geophysics	M.Sc. in Geophysics/Applied Geophysics or 5-year integrated M.Tech. in Geophysical Technology.	Geology & Geophysics

† The candidates belonging to Physics discipline selected for the BARC Training School at Mumbai will be allotted either Physics or Radiological Safety Engineering as their Training Schemes and those selected for the BARC Training school at IGCAR will be allotted Reactor Physics as their Training Scheme.

‡ The candidates belonging to Chemistry discipline selected for the BARC Training School at Mumbai will be allotted either Chemistry or Radiological Safety Engineering as their Training Schemes and those selected for the Training school at IGCAR will pursue Nuclear Fuel Cycle Chemistry in the Training School.

Radiological Safety Engineering (RSE) is not a separate discipline but an additional Training Scheme option for candidates in Nuclear Engineering, Physics and Chemistry.

7. Training School and Training Scheme Options-

(Table 2)

Training School	Degree Disciplines Eligible to Apply	Training Schemes	Orientation of Training
BARC, Mumbai (Since 1957)	ME, CH, MT, EE, EC, CS, IN, CE, NE, PH, CY, BS	ME, CH, MT, EE, EC, CS, IN, CE, PH, CY, BS, RSE	<ul style="list-style-type: none"> • Engineering Design, Development, Operation and Maintenance of Nuclear Reactors • Research in frontier areas of Basic and Engineering Sciences
IGCAR, Kalpakkam (Since 2006)	ME, CH, EC, NE, PH, CY	ME, CH, EC, PH, CY	<ul style="list-style-type: none"> • R&D and Engineering related to Fast Breeder Reactors • Research in frontier areas of Basic and Engineering Sciences
RRCAT, Indore (Since 2000)	EE, EC, PH	EE, EC, PH	<ul style="list-style-type: none"> • R&D and Engineering related to lasers, accelerators, plasma physics, cryogenics and superconductivity
NFC-HWB, Hyderabad (Since 2001)	ME, CH, EE, EC, NE	ME, CH, EE, EC	<ul style="list-style-type: none"> • Operation & Maintenance and Engineering related to Nuclear Fuel Facilities and production plants for production of Heavy Water to support the Nuclear Power Program
AMD, Hyderabad (Since 2010)	GE, GP	GE, GP	<ul style="list-style-type: none"> • Exploration Techniques for Uranium and other Atomic Minerals and related R&D activities

8. DGFS: Admissible Disciplines, M. Tech. / M. Chem.

Engg. Specializations and DGFS Institutes (Table-3)

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 / BTech / BSc Engg (Mechanical)	All except ICT
Cryogenic	BE / BTech / BSc Engg (Mechanical)	Kh
Chemical Engineering	BE / BTech / BSc Engg (Chemical)	All except Rkl
Applied Mechanics	BE / BTech / BSc Engg (Civil/ Mechanical)	M
Civil Engineering	BE / BTech / BSc Engg (Civil)	All except Rkl, ICT
Earthquake Engineering	BE / BTech / BSc Engg (Civil)	K, R
Nuclear Hydrology	BE / BTech / BSc Engg (Civil/ Chemical)	R
Metallurgical Engineering, Materials Science/ Engg	BE / BTech / BSc Engg (Metallurgy/ Chemical)	All except G, ICT
Electrical Engineering	BE / BTech / BSc Engg (Electrical/ Electronics)	All except G, ICT
Reliability Engineering, Systems & Control Engineering, Energy Systems	BE / BTech / BSc Engg (Mechanical/ Electrical/ Chemical)	B, D, Kh, R
Power/ Communication/ Control Engg, Integrated Electronics & Circuits	BE / BTech / BSc Engg (Electrical/ Electronics)	D, G, R
Instrumentation	BE / BTech / BSc Engg (Electrical/ Electronics/ Instrumentation)	Kh, M,R
Computer Science, Engineering & Technology	BE / BTech / BSc Engg (Computer/ Electrical/ Electronics)	All except Rkl, Var, ICT
Applied Optics, Lasers & Optoelectronics	BE / BTech / BSc Engg (Electronics) M.Sc. (Physics / Applied Physics)	D
Nuclear Engineering & Technology	BE / BTech / BSc Engg (Mechanical/ Chemical/ Electrical/ Electronics)	K
Solid State Materials/ Electronic Materials	BE / BTech / BSc Engg (Electrical/ Electronics) M.Sc. (Phy/ App Phy)	D, R
Electronics Engg, Electronics and Communication Engg	BE / BTech / BSc Engg (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. Specialization at the Institutes under the DGFS scheme will depend upon the requirements of DAE.

9. Important Dates- (Table-4)

Commencement of Online Application Process for OCES/DGFS-2018	1 st January, 2018
Last date for Registration for Online Application	4 th February, 2018
Last date for Submission of Online Application	5 th February, 2018
Download of Admit Card for Online Examination	26 th February, 2018 onwards
Online Examination	28 th March- 3 rd April, 2018
Last date for candidates to upload their GATE score	2 nd April, 2018
Display of List of candidates short-listed for Interview on Online Application Portal	18 th April, 2018
Availability based option on Online Application Portal to select Interview Slot for qualified candidates	20 th - 25 th April, 2018
Selection Interviews	16 th May - 15 th June, 2018
Display of List of Candidates finally selected for OCES-2018 on Online Application Portal	Last week of June, 2018
Last Date for Selected OCES-2018 Candidates desirous of DGFS to give details of M.Tech / M.Chem.Engg. admission in a DGFS institute	4 th July, 2018
Declaration of List of Applicants Selected for DGFS-2018 on Online Application Portal	2 nd week of July, 2018

10. Calculation of BARC Online Examination Score

Annexure-I

BARC Training School (BARC TS) Online Examination Score

After the evaluation of the answers, the raw marks obtained by a candidate will be converted to a BARC TS Online Examination Score. It will be calculated using the formula given below.

Calculation of Normalized Marks for multi-session papers

In BARC TS Online Examination-2018, examination for some papers (refer Table-4) will be conducted in multiple sessions. Hence, for these papers, a suitable normalization is applied to take into account any variation in the difficulty levels of the question papers across different sessions. The normalization is done based on the fundamental assumption that "in all multi-session online examination papers, the distribution of abilities of candidates is the same across all the sessions". This assumption is justified since the number of candidates appearing in multiple session papers in BARC online examination-2018 is large and the procedure for allocation of session to candidates is random.

The following formula for calculating the BARC TS Online Examination Score for the multi-session papers will be used.

BARC TS Online Examination Score of j^{th} candidate in the i^{th} session is S_{ij} given by

$$S_{ij} = \frac{\bar{M}_t^g - M_q^g}{\bar{M}_{ti} - M_{iq}} (M_{ij} - M_{iq}) + M_q^{gm}$$

where

M_{ij} = is the actual marks obtained by the j^{th} candidate in i^{th} session

\bar{M}_t^g = is the average marks of the selected percentage of top performing candidates considering all sessions.

\bar{M}_{ii} = is the average marks of the selected percentage of top performing candidates in the i^{th} session (ME-0.5%, EC-1%, EE-1%, CE-1%, CS-1%, CH-2%, IN-2%)

M_q^g = is the sum of mean and standard deviation marks of the candidates in the paper considering all sessions.

M_{iq} = is the sum of the mean marks and standard deviation of the i^{th} session

M_q^{gm} = mean marks of candidates in the session having max. mean + standard deviation of marks of the candidates in the paper considering all session.

In determining the mean and standard deviations mentioned above, marks of the candidates obtaining negative marks are ignored.

After evaluation of the answers, online examination score based on the above formula will be calculated for each candidate corresponding to the raw marks obtained by a candidate.

For all papers for which there is only one session (refer Table-1 again) the BARC TS Online Examination Score will be same as the actual marks obtained by candidates.

Table-4

S. No.	Discipline	Code	No. of Session*
1	Mechanical Engg	ME	03
2	Chemical Engg.	CH	03
3	Civil Engg	CE	03
4	Metallurgical Engg.	MT	01
5	Nuclear Engg.	NE	01
6	Electrical Engg.	EE	03
7	Electronics Engg.	EC	03
8	Computer Science	CS	03

9	Instrumentation Engg.	IN	03
10	Physics	PH	01
11	Chemistry	CY	01
12	Bio Science	BS	01
13	Geology	GE	01
14	Geophysics	GP	01

*Number of Examination Sessions mentioned are tentative and could be revised depending on number of applications in that discipline.