

**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-2021**

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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, Bioscience and Geology**.

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 women candidates are encouraged to apply.

A. One-year Orientation Course for Engineering Graduates and Science Postgraduates for the academic year 2021-2022 (OCES-2021) 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**
- d. **Heavy Water Board (HWB), Mumbai***
- e. **Nuclear Fuel Complex (NFC), Hyderabad***

- f. Board of Radiation and Isotope Technology (BRIT), Mumbai*
- g. Nuclear Power Corporation of India Ltd (NPCIL), Mumbai*
- h. Bharatiya Nabhikiya Vidyut Nigam Ltd (BHAVINI), Kalpakkam*
- i. Uranium Corporation of India Ltd (UCIL), Jaduguda*
- j. Atomic Minerals Directorate for Exploration & Research (AMD), Hyderabad*
- k. 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** provided their academic performance is above a specified threshold.

B. Two-year DAE Graduate Fellowship Scheme for Engineering Graduates and Physics Postgraduates for the academic session beginning in July/August 2021 (DGFS-2021). 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 ₹ 55,000 per month during the period of their Training and a one- time book allowance of ₹ 18,000. 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 ₹ 6,78,000 for OCES TSOs and ₹ 13,58,000 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 after successful completion of Training Programme in all 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 OCDF 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 ₹ 95,000.

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-2021 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 and 1b except for FRT-M (code 30), FRT-E (code 31), QA&QC (code 32) and RSES (code 44).

- FRT-M (code 30) is an additional Training Scheme option available to applicants belonging to Mechanical Engineering or Chemical Engineering (codes 21 and 22).
- FRT-E (code 31) is an additional Training Scheme option available to applicants belonging to Electrical Engineering or Electronics Engineering (codes 24 and 25).
- QA&QC (code 32) is an additional Training Scheme option available to applicants belonging to Mechanical Engineering or Metallurgical Engineering (codes 21 and 23).
- RSES (code 44) is an additional Training Scheme option to applicants belonging to Nuclear Engineering, Physics and Chemistry disciplines (codes 29, 41 and 42). There is no separate Training Scheme called 'Nuclear Engineering (code 29)' and selected candidates belonging to Nuclear Engineering (code 29) will be allotted RSES (code 44) or Mechanical (code 21) or Chemical (Code 22) as their Training Schemes.

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

1) On the basis of Online Examination:

- i. Online Examination will be conducted in **September, 2021*** in each of the nine Engineering disciplines (codes 21 - 29) and four Science disciplines (Codes 41 – 43 and 45) 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 permitted to book an examination slot and examination centre based on availability in August, 2021*. The allotment will be done on 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.

2. On the basis of GATE score:

Candidates will be screened in for Selection Interview on the basis of a valid **GATE-2020** or **GATE-2021** 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 September, 2021*.**

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 permitted to book an examination slot at a 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.
4. 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 **2019-2020 / 2020-2021**, 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-2021** 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-2021** program on the Online Application Portal and subsequently forward their details through the Directors of their institutes.

Other Opportunities:

Candidates applying for OCES/DGFS-2021 may be considered for direct recruitment in Electronics Corporation of India Ltd. (ECIL) and Institute for Plasma Research (IPR). Such candidates will be governed by stipendiary norms of ECIL and IPR and terms and service conditions of ECIL and IPR respectively 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 2021-22. 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 Hyderabad (in Geology). Outstation applicants will be paid **two-way normal AC-III tier train fare to attend Selection Interview**, from their registered residential address, by shortest route or actual fare whichever is less.

Probable period of Selection Interviews is during **October, 2021***. Short-listed candidates will be able to choose an Interview slot based on **availability in September, 2021***. 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-2021 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 second week of November, 2021***. The selected candidates will also be informed about their Selection by email and SMS.

Candidates selected for OCES-2021, 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 third week of November 2021*.

* All dates are tentative and applicants must regularly visit this website for updates

4. Eligibility Criteria

A. Qualifying Degrees and Other Academic Requirements for OCES/DGFS-2021

a) For Engineering Disciplines (codes ME (21), CH (22), MT(23), EE(24), EC(25), CS(26), IN(27), CE(28), NE(29) 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 above mentioned eight 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 RSES at the BARC Training School, Mumbai or Mechanical (ME - code 21) or Chemical (CH – Code 22) 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-2020 or GATE-2021 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, Aeronautical Engineering, 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, Mechatronics, Power Engineering, Power Plant Engineering, Control Engineering, Software Engineering, Electronics and Computer Engineering etc. are **NOT** eligible.

b) For Fast Reactor Technology-M (FRT-M, code 30):

B.E. / B.Tech. / B.Sc.(Engineering) / 5-year Integrated M.Tech. in Mechanical Engineering or Chemical Engineering with minimum of 60%* aggregate marks in qualifying degree. FRT-M is an additional Training Scheme option available to applicants belonging to Mechanical Engineering or Chemical Engineering (codes 21 and 22)and hence there will not be separate screening test or Selection interview.

c) For Fast Reactor Technology-E (FRT-E, code 31):

B.E. / B.Tech. / B.Sc.(Engineering) / 5-year Integrated M.Tech.in Electrical Engg. / Electronics Engg. / Electronics & Communication Engg. / Electronics

& Controls Engg. / Electrical & Electronics Engg. / Electronics & Instrumentation Engg. with minimum of 60%* aggregate marks in qualifying degree. FRT-E is an additional Training Scheme option available to applicants belonging to Electrical Engineering or Electronics Engineering (codes 24 and 25) and hence there will not be separate screening test or Selection interview.

d) For Quality Assurance & Quality Control (QA&QC, code 32):

B.E. / B.Tech. / B.Sc.(Engineering) / 5-year Integrated M.Tech. in Mechanical Engineering or Metallurgy / Metallurgy & Materials Engineering / Metallurgy & Materials Science / Metallurgical Engineering / Metallurgical & Materials Engineering / Metallurgical Engineering & Materials Science / Materials Science & Engineering with minimum of 60%* aggregate marks in qualifying degree. QA&QC is an additional Training Scheme option available to applicants belonging to Mechanical Engineering or Metallurgical Engineering (codes 21 and 23) and hence there will not be separate screening test or Selection interview.

e) For Physics Discipline (code PH (41)) (Table-1b):

- 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-2020 or GATE-2021** 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-2020 or GATE-2021** Score either in "Physics" or in "Engineering Sciences".

f) For Chemistry Discipline (code CY(42)) (Table-1b):

- 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-2020 or GATE-2021 Score in “Chemistry”.

g) For Biosciences Discipline (code BS(43)) (Table-1b):

- 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-2020 or GATE-2021** 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.**

h) For Radiological Safety & Environmental Science (code RSES(44)):

- 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 /Applied 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.
- iv. 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. RSES is an additional Training Scheme option to applicants belonging to Nuclear Engineering, Physics and Chemistry

disciplines (codes 29, 41 and 42) and hence there will not be separate screening test or Selection interview

i) For Geology Discipline (Code GE(45)) (Table-1b):

- 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-2020 or GATE-2021** Score in "Geology and Geophysics".

j) 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(21), CH(22), MT(23), EE(24), EC(25), CS(26), IN(27) & CE(28)) or in Physics (PH(41)) and who meet the corresponding eligibility criteria listed above are eligible to apply for DGFS provided they are selected for **OCES-2021** and additionally secure admission for M.Tech./ M.Chem. Engg. starting in the academic year 2021 in select Institutes and in specializations listed in Table-3.
- ii. Confirmation of M.Tech. / M.Chem.Engg. admission should be communicated by **third week of November, 2021#**.
- 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, 2021):

- i. **General Category - 26 years,**
- ii. **OBC - 29 years,**
- iii. **SC/ST – 31 years,**
- iv. **Dependents of those who died in the riots of 1984 (Dep1984) – 31 years,**
- v. **Persons domiciled in Kashmir Division of Jammu & Kashmir State from 01/01/1980 to 31/12/1989 (Domicile of 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, 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-2021 program, being submitted by Dec 30, 2021 in case of OCES TSOs and as per the requirement of the concerned DGFS Institutes in the case of DGFS Fellows.

All dates are tentative and applicants must regularly visit this website for updates.

5. How to Apply

ONLY ONLINE APPLICATIONS WILL BE ACCEPTED.

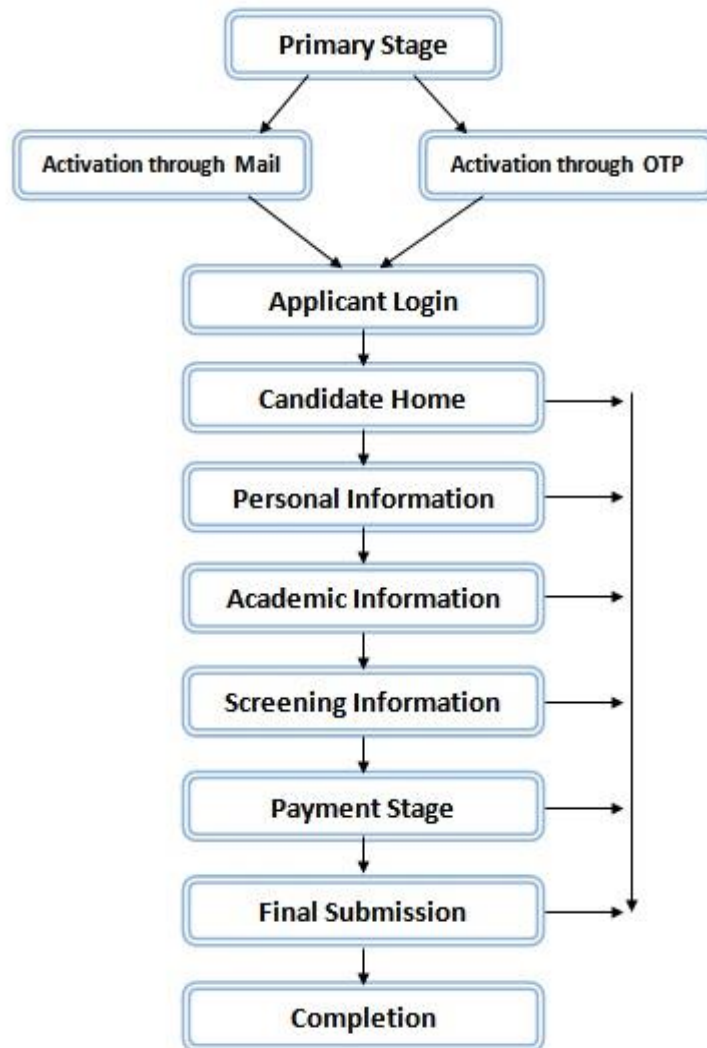
- Candidates have to fill up the Online Application form provided on this website.
- Candidates need to register through “**Apply Online**” link by providing essential information like name, mother’s name, date of birth, e-mail id and a preferred login id. ***It may be noted that the details provided at this stage cannot be modified later on, and hence the candidates are advised to be careful in entering the details.***
- 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.
- 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.
- 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).
- 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 net banking / 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.**
- **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.**
- 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.
 - The candidates who wish to apply for screening on the basis of GATE-2020/GATE-2021 Score must upload their GATE Score during the Application Process. **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 – OCES/DGFS -2021 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 (i.e. Examination Discipline) and Qualifying Degree. The candidate also must enter other primary details like: Name, Mother's Name, DOB, Email ID, Mobile number etc. 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, i.e. 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 candidate has chosen GATE as the screening channel, he has to enter the GATE score and upload his Score card while applying. 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. |
| Step 6: | Payment: 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. Candidates, who are exempted from paying fees can directly proceed to the Final Submission. |
| Step 7: | Final Submission: 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. |

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(21) | Mechanical | Mechanical Engineering | Mechanical Engineering |
| CH(22) | Chemical | Chemical Engineering | Chemical Engineering |
| MT(23) | Metallurgical§ | Metallurgy / Metallurgy & Materials Engineering / Metallurgy & Materials Science / Metallurgical Engineering / Metallurgical & Materials Engineering / Metallurgical Engineering & Materials Science / Materials Science & Engineering | Metallurgical Engineering |
| EE(24) | Electrical# | Electrical Engineering / Electrical & Electronics Engineering | Electrical Engineering |
| EC(25) | Electronics*# | Electrical Engg. / Electronics Engg. / Electronics & Communication Engg. / Electronics & Controls Engg. / Electrical & Electronics Engg. / Electronics & Instrumentation Engg./ | Electronics & Communication Engg. |
| CS(26) | Computer Science | Computer Science / Computer Engineering/ Computer Science & Engineering | Computer Science & Information Technology |
| IN(27) | Instrumentation**# | Instrumentation Engg. / Electronics & Instrumentation Engg./ Instrumentation & Controls | Instrumentation Engineering |
| CE(28) | Civil | Civil Engineering | Civil Engineering |
| NE(29) | Nuclear Engineering§§ | Nuclear Engineering / Nuclear Technology / Nuclear Science & Technology | NOT ELIGIBLE through GATE |
| FRT-M (30) | Fast Reactor Technology-M\$ | B.E./B.Tech./B.Sc. (Engg.)/5-year integrated M. Tech. in Mechanical or Chemical Engineering | Same as qualifying degree discipline i.e. Mechanical or Chemical Engineering |
| FRT-E(31) | Fast Reactor Technology-E\$\$ | B.E./B.Tech./B.Sc. (Engg.)/5-year integrated M. Tech. in Electrical Engg. / Electronics Engg. / Electronics & Communication Engg. / Electronics & Controls Engg. / Electrical & Electronics Engg. / Electronics & Instrumentation Engg. | Same as qualifying degree discipline i.e. Electrical or Electronics Engineering |
| QA&QC(32) | Quality Assurance & Quality Control\$\$\$ | B.E./B.Tech./B.Sc. (Engg.)/5-year integrated M. Tech. in Mechanical or Metallurgy / Metallurgy & Materials Engineering / Metallurgy & Materials Science / Metallurgical Engineering / Metallurgical & Materials Engineering / Metallurgical Engineering & Materials Science / Materials Science & Engineering | Same as qualifying degree discipline i.e. Mechanical or Metallurgical Engineering |

*Related degree disciplines such as 'Electrical', 'Electronics & Communication', 'Electronics and Controls' are also eligible to apply under Electronics (code 25). However, such candidates must qualify on the basis of a valid GATE score or Online Test in Electronics(25).

** Related degree discipline viz. 'Instrumentation & Controls ' are also eligible to apply under Instrumentation (code 27). However such candidates must qualify on the basis of valid GATE score or Online Test in Instrumentation.

#Candidates with degree disciplines 'Electrical & Electronics' **can apply under either of the disciplines Electrical (24) or Electronics(25) and candidates with degree disciplines 'Electronics & Instrumentation' can apply under either of the disciplines Instrumentation (27) or Electronics(25).** However, such candidates must qualify on the basis of a valid GATE score or Online Test in the discipline in which they wish to be considered.

§Candidates with B.E. / B.Tech. / B.Sc.(Engg.) / 5-year Integrated M.Tech. in 'Metallurgy & Materials Engineering', 'Metallurgy & Materials Science', 'Metallurgical Engineering', 'Metallurgical & Materials Engineering', 'Metallurgical Engineering & Materials Science' and 'Materials Science & Engineering' are eligible to apply under Metallurgy (code 23).

§§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 RSES (code 44) Training Scheme at the BARC Training School, Mumbai and for 'Mechanical (code 21)' and 'Chemical (code 22)' Training Schemes at the BARC Training Schools in Mumbai, Kalpakkam and NFC-Hyderabad.

§ FRT-M (code 30) is not a separate discipline but an additional Training Scheme option for candidates in Mechanical (code 21) and Chemical (code 22)Engg.

§§ FRT-E (code 31) is not a separate discipline but an additional Training Scheme option for candidates in Electrical (code 24) and Electronics (code 25) Engg.

§§§QA&QC (code 32) is not a separate discipline but an additional Training Scheme option for candidates in Mechanical (code 21) and Metallurgy (code 23).

(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(41) | Physics† | M. Sc. In Physics / Applied Physics | Physics |
| | | B.E./B.Tech. In Engineering Physics | Physics / Engineering Sciences |
| CY(42)) | Chemistry‡ | M. Sc. In Chemistry | Chemistry |
| BS(43) | 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, Biomedical Sciences and | Life Sciences / Biotechnology |
| | | B.E./B.Tech./B.Sc.(Tech.) in Food Technology | |
| RSES(44) | Radiological Safety & Environmental Science# | 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(45) | Geology | M.Sc. or equivalent M.Tech. in Geology / Applied Geology / Applied Geochemistry or 5-year integrated M.Tech. in Geological Technology. | Geology & Geophysics |

†The candidates belonging to 'Physics (Code 41)' discipline selected for the BARC Training School at Mumbai will be allotted either Physics (code 41) or RSES (Code 44) as their Training Schemes and those selected for the BARC Training school at IGCAR will be allotted Reactor Physics (RP) as their Training Scheme.

‡The candidates belonging to 'Chemistry (code 42)' discipline selected for the BARC Training School at Mumbai will be allotted either Chemistry (code 42) or RSES (code 44) as their Training Schemes and those selected for the Training school at IGCAR will pursue Nuclear Fuel Cycle Chemistry (NFCC) in the Training School.

##Radiological Safety & Environmental Science (RSES-code 44) is not a separate discipline but an additional Training Scheme option for candidates in 'Physics (Code 41)', 'Chemistry (code 42)' & 'Nuclear Engineering (code 29)'.

7. Training School and Training Scheme Options-

| 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, RSES | <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, EE, EC, NE, PH, CY | ME, CH, EC, FRT- M, FRT-E, RP, NFCC | <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, MT, EE, EC, NE | ME, CH, EE, EC, QA&QC | <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 | GE | <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 | B.E./B.Tech./B.Sc. (Engg) (Mechanical) | All except ICT |
| Cryogenic | B.E./B.Tech./B.Sc. (Engg) (Mechanical) | Kh |
| Chemical Engineering | B.E./B.Tech./B.Sc. (Engg) (Chemical) | All except Rkl |
| Applied Mechanics | B.E./B.Tech./B.Sc. (Engg) (Civil/ Mechanical) | M |
| Civil Engineering | B.E./B.Tech./B.Sc. (Engg) (Civil) | All except Rkl, ICT |
| Earthquake Engineering | B.E./B.Tech./B.Sc. (Engg) (Civil) | K, R |
| Nuclear Hydrology | B.E./B.Tech./B.Sc. (Engg) (Civil/ Chemical) | R |
| Metallurgical Engineering, Materials Science, Materials Engineering | B.E./B.Tech./B.Sc. (Engg) (Metallurgy/Metallurgical Engg. / Materials Engg./ Metallurgical & Materials Engg./ Materials Science & Engg./ Metallurgy & Materials Engg./ Metallurgy & Materials Science/ Metallurgical Engineering & Materials Science/Chemical) | All except G, ICT |
| Electrical Engineering | B.E./B.Tech./B.Sc. (Engg) (Electrical/ Electronics/ Electrical & Electronics Engineering / Electronics & Control Engg./Electronics & Communication Engg./ Electronics & Instrumentation Engg.) | All except G, ICT |
| Reliability Engineering, Systems & Control Engineering, Energy Systems | B.E./B.Tech./B.Sc. (Engg) (Mechanical/ .Chemical / Electrical/ Electrical & Electronics Engineering / Electronics & Control Engg./Electronics & Communication Engg./ Electronics & Instrumentation Engg) | B, D, Kh, R |
| Power/ Communication/ Control Engg, Integrated Electronics & Circuits | B.E./B.Tech./B.Sc. (Engg) (Electrical/ Electronics / Electrical & Electronics Engineering / Electronics & Control Engg./Electronics & Communication Engg./ Electronics & Instrumentation Engg.) | D, G, R |
| Instrumentation | B.E./B.Tech./B.Sc. (Engg) (Electrical/ Electronics/ Instrumentation / Electrical & Electronics Engineering / / Electronics & Control Engg. / Electronics & Communication Engg./ Electronics & Instrumentation Engg.) | Kh,M,R |
| Computer Science, Engineering & Technology | B.E./B.Tech./B.Sc. (Engg) (Computer Science /Computer Engineering/ Computer Science & Engineering / Electrical/ Electronics/ Electrical & Electronics Engineering / Electronics & Control Engg./Electronics & Communication Engg./ Electronics & Instrumentation Engg.) | All except Rkl, Var,ICT |
| Applied Optics, Lasers & Optoelectronics | B.E./B.Tech./B.Sc. (Engg) (Electronics) / Electrical & Electronics Engineering / Electronics & Control Engg./Electronics & Communication Engg./ Electronics & Instrumentation Engg./M.Sc. (Physics / Applied Physics) | D |
| Nuclear Engineering & Technology | B.E./B.Tech./B.Sc (Engg) (Mechanical/ Chemical/ Electrical/ Electronics / / Electrical & Electronics Engineering / Electronics & Control Engg./Electronics & Communication Engg./ Electronics & Instrumentation Engg.) | K |
| Solid State Materials/ Electronic Materials | B.E./B.Tech./B.Sc. (Engg) (Electrical/ Electronics)/ Electrical & Electronics Engineering / Electronics & Control Engg./Electronics & Communication Engg./ Electronics & Instrumentation Engg./ M.Sc. (Phy/ App. Phy) | D, R |
| Electronics Engg, Electronics and Communication Engg | B.E./B.Tech./B.Sc. (Engg) (Electrical/Electronics / Electrical & Electronics Engineering / Electronics & Control Engg./Electronics & Communication Engg./ Electronics & Instrumentation Engg.) | 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-2021 | 12 th July, 2021 |
| Last date for Registration for Online Application | 7th August, 2021 14 th August, 2021 |
| Last date for Submission of Online Application | 9th August, 2021 16 th August, 2021 |
| Online Examination Slot Booking | 20th August, 2021 to 25th August, 2021 6 th September to 15 th September, 2021 |
| Online Examination | 5th September to 12th September, 2021 22 nd September to 27 th September, 2021 |
| Display of List of candidates short-listed for Interview on Online Application Portal | 24st September, 2021 Y q A^Aq } [~ } &^aAæ^E |
| Availability based option on Online Application Portal to select Interview Slot for qualified candidates | 24th September - 28th September, 2021 Y q A^Aq } [~ } &^aAæ^E |
| Selection Interviews | 4th October, 2021-29th October, 2021 Y q A^Aq } [~ } &^aAæ^E |
| Display of List of Candidates finally selected for OCES-2021 on Online Application Portal | Second week of November, 2021 |
| Last Date for Selected OCES-2021 Candidates desirous of DGFS to give details of M.Tech I M.Chem.Engg. admission in a DGFS institute | Third week of November, 2021 |
| Declaration of List of Applicants Selected for DGFS-2021 on Online Application Portal | 30 th November, 2021 |

* **All dates are tentative and applicants must regularly visit this website for updates.**

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-2021, 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-2021 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

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

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}_{ti} = is the average marks of the selected percentage of top performing candidates in the i^{th} session

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-4 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(21) | 04 |
| 2 | Chemical Engg. | CH(22) | 02 |
| 3 | Civil Engg | CE(28) | 02 |
| 4 | Metallurgical Engg. | MT(23) | 01 |
| 5 | Nuclear Engg. | NE(29) | 01 |
| 6 | Electrical Engg. | EE(24) | 03 |

| | | | |
|-----------|-----------------------|--------|----|
| 7 | Electronics Engg. | EC(25) | 03 |
| 8 | Computer Science | CS(26) | 03 |
| 9 | Instrumentation Engg. | IN(27) | 02 |
| 10 | Physics | PH(41) | 01 |
| 11 | Chemistry | CY(42) | 01 |
| 12 | Bio Science | BS(43) | 01 |
| 13 | Geology | GE(45) | 01 |

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