

2018

Student Handbook for

Olympiads, NTSE, KVPY and Engineering
& Medical Careers



Aakash

Medical | IIT-JEE | Foundations

(Divisions of Aakash Educational Services Limited)



A close-up portrait of J C Chaudhry, the Chairman of AESL. He is a middle-aged man with dark hair, wearing a dark suit jacket, a white shirt, and a blue and yellow striped tie. He is looking directly at the camera with a serious expression. The background is a blurred wooden wall.

MESSAGE FROM THE CHAIRMAN

LEADING FROM THE FRONT

Taking on challenges & cultivating a culture of

“can do, will do”

Looking back at the years gone by, since our inception and the kind of result we have achieved in all the competitive examinations, we have created an unparalleled reputation across the country. Overwhelming as the results are, it is heartening to know that we have worked hard for them with an uncommon determination. And in doing so, along the way we have now managed to make extraordinary achievements an ordinary routine for ourselves.

But such accomplishments come with their own share of challenges. Whenever a student comes to Aakash, he/she brings with him/her high expectations, not just his own but also of his parents. With tens of thousands of students every year, it becomes a big challenge for us to live up to the expectations of each one of them. But at Aakash, we have this tradition of accepting challenges howsoever big they are, even if we have to toil hard or walk an extra mile. That is why, we always have to constantly evolve to keep up with the time, insist on the highest standards of teaching and seek perfection in everything we do.

J C Chaudhry
Chairman, AESL

Hard work pays
rich dividends!

TABLE OF CONTENTS

S. No.	Topic	Page No.
1	Olympiads – Gateway to Global Recognition	1
2	India and the Olympiads	3
3	Mathematical Olympiad Program in India	4
4	Science and Astronomy Olympiad Programs in India	10
5	Some other Respectable Science Olympiads	18
6	Some Popular Olympiads in India conducting by other Organisations	19
7	National Talent Search Examination (NTSE)	21
8	Junior Science Talent Search Examination (JSTSE)	27
9	Kishore Vaigyanik Protsahan Yojana (KVPY)	28
10	Engineering – A Career full of Opportunities	31
11	Medical – A Career endowed with Respect	36
12	The Aakash Advantage	44
13	Glimpse of Yearlong Classroom Courses offered by Aakash	48
14	Events Calendar (Olympiads / NTSE / KVPY)	49

OLYMPIADS – GATEWAY TO GLOBAL RECOGNITION

Olympiads are a group of annual global competitions held in various areas of science for pre-college students. The best 4-6 students from each country are selected through National Olympiads with the exception of the Olympiads in Linguistics - IOL (two teams per country), Informatics – IOI (two teams from the host country) and the Junior Science Olympiads – IOJS (for junior secondary students). **There are several Olympiads held across the world, few of them are listed below:**

1. The International Mathematical Olympiad (IMO, since 1959; not held in 1980)
2. The International Physics Olympiad (IPhO, since 1967; not held in 1973, 1978, 1980)
3. The International Chemistry Olympiad (IChO, since 1968; not held in 1971)
4. The International Olympiad in Informatics (IOI, since 1989)
5. The International Biology Olympiad (IBO, since 1990)
6. The International Philosophy Olympiad (IPO, since 1993)
7. The International Astronomy Olympiad (IAO, since 1996)
8. The International Geography Olympiad (IGeO, since 1996)
9. The International Junior Science Olympiad (IJSO, since 2004)
10. The International Olympiad on Astronomy and Astrophysics (IOAA, since 2007)

Each Olympiad is a separate exam with its own organizing body and a common set of rules and regulations. The objective behind conducting the Olympiad exams is that they help in promoting a career in science and serve as a platform to challenge the brightest minds in science across the world. This also serves as an indicator of the standard of science teaching in the country.

Some Other Respectable Mathematical Olympiads

- ❖ **European Girls Mathematical Olympiad (EGMO):** The EGMO, which started in 2012, is a platform which promotes a career in Mathematics amongst girl students by challenging the brightest four pre-university girl students from each participating country. The EGMO is a two day event with two written tests held on two consecutive days. Each test consists of three problems and the contest lasts for four and half hours on each day.

India has been participating in the EGMO since 2015 and the selection process for EGMO is conjoined with that for the IMO (The International Mathematical Olympiad)- which will be discussed later in this handbook.

- ❖ **Asia Pacific Mathematics Olympiad (APMO):** The APMO, which started in 1989, is a contest specifically held for students in Asian countries and the countries in the rim of Pacific Ocean. A student can participate in APMO being in his/her own country.

India has been participating in the APMO since 2015. The APMO is a one day event consisting of 5 problems to be solved in four hours. The other rules and regulations for participating in APMO are much like the IMO.

INDIA AND THE OLYMPIADS

The Homi Bhabha Centre for Science Education (HBCSE) is the nodal centre of the country for Olympiad programmes in mathematics and sciences including astronomy.

The programmes aim at promoting excellence in science and mathematics among pre-university students.

The Olympiad program for Mathematics is a five stage process, before the IMO. The Olympiad programmes in Physics, Chemistry, Biology, Astronomy (junior and senior level) and junior science are four stage process, before the international event, for each subject separately.

The Science programme is financially supported by Government of India, in particular, by Board of Research in Nuclear Sciences, Department of Atomic Energy, Department of Science and Technology, Department of Space, Ministry of Human Resource Development, Indian Space Research Organisation.

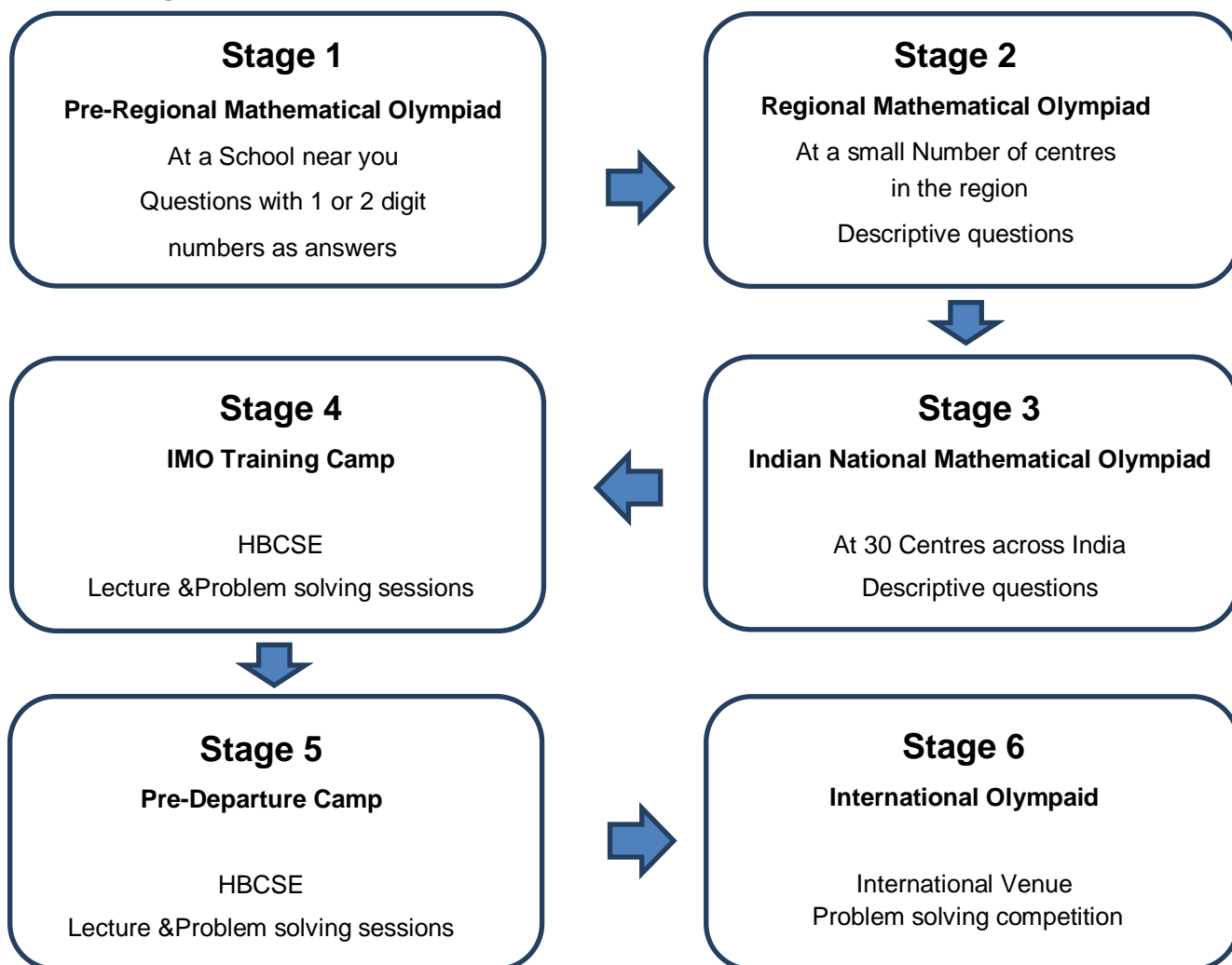
The Mathematical Olympiad is funded by Government of India, through National Board of Higher Mathematics of the Department of Atomic Energy

Mathematical Olympiad Program in India

The Mathematical Olympiad Programme in India, which leads to participation of Indian students in the International Mathematical Olympiad (IMO) is organized by the Homi Bhabha Centre for Science Education (HBCSE) in collaboration with the National Board for Higher Mathematics (NBHM) of the Department of Atomic Energy (DAE), Government of India. The first stage (PRMO) of the Olympiad examination is conducted by MTA (Mathematics Teachers' Association) with assistance from IAPT, while the later stages are the responsibility of HBCSE. This programme is one of the major initiatives undertaken by the NBHM. Its main purpose is to spot mathematical talent among pre-university students in the country.

In order to select the students for International Olympiads the country has been divided into regions with a regional coordinator responsible for each region (details of which are available on the HBCSE website). The Mathematical Olympiad programme consists of six stages.

The Six Stages



Stage 1: Pre Regional Mathematical Olympiad (PRMO)

- a. PMRO is the first stage for IMO organized by MTA with assistance from IAPT.
- b. Test paper contains 30 Questions
- c. Duration will be 3 Hrs.
- d. List of top 300 students who will be eligible for RMO from each region will be declared by mid September
- e. Eligibility: Not older than 19 years of age as on 1st August and, in addition, studying in Class VIII, IX, X, XI or XII
- f. Details of examination fees and other details are available on the IAPT Website: <http://iapt.org.in/> or HBCSE Website: olympiads.hbcse.tifr.res.in

Stage 2: Regional Mathematical Olympiad (RMO)

- a. Three hours written test with six problems
- b. Conducted by Regional Coordinators under the guidance of HBCSE.
- c. 30 top students from classes VIII, IX, X, XI and top 6 students from class XII + next 5 girls students will be sent by each regional coordinator to HBCSE
- d. Results of all the RMOs is declared centrally by the HBCSE.
- e. Eligibility: Students who qualify PRMO

Stage 3: Indian National Mathematical Olympiad (INMO)

- a. Usually held on the third Sunday of January
- b. Four Hours Written Test
- c. Top 30 Students from the country are chosen in order of merit
- d. In addition to the top 30, up to five girl students will be chosen based on their performance in INMO for participation in EGMO
- e. Eligibility: Students who are selected in RMO in the previous year and those holding a INMO Certificate of Merit

Stage 4: International Mathematical Olympiad Training Camp (IMOTC)(during April to May)

- a. Month long training camp in April-May at the Homi Bhabha Centre for Science Education (HBCSE), Mumbai for INMO Awardees and the girls selected for EGMO.
- b. INMO Awardees of previous years eligible for IMO and EGMO are also invited, provided they have satisfactorily gone through postal tuition throughout the year.

- c. On the basis of a number of selection tests through the Camp, a team of the best six students is selected from the combined pool of junior and senior batch participants.
- d. The junior students will receive INMO certificate and a prize in the form of books. The senior students will receive a prize in the form of books and cash.

Stage 5: Pre-departure Training Camp for IMO

- a. Final round of training and orientation for the selected six students for eight to ten days at HBCSE prior to departure for IMO and EGMO.

Stage 6: International Mathematical Olympiad (IMO)

- a. The six member team selected at the end of IMOTC accompanied by a leader, a deputy leader and an observer represents the country at the IMO, held in July each year in a different member country of the IMO.
- b. Two written tests held on two consecutive days
- c. Each test consists of three problems
- d. Duration: Four and Half Hours
- e. Selection of team members for IMO will be subject to their fulfilling criteria such as age limit, medical fitness, parental consent and others as specified by the council
- f. Each selected student needs to have a valid Indian passport meeting the visa regulations of the host country.

Syllabus

Pre-degree college mathematics - arithmetic of integers, geometry, quadratic equations and expressions, trigonometry, co-ordinate geometry, system of linear equations, permutations and combination, factorisation of polynomial, inequalities, elementary combinatorics, probability theory and number theory, finite series and complex numbers and elementary graph theory. The syllabus does not include calculus and statistics. The major areas from which problems are given are algebra, combinatorics, geometry and number theory. The syllabus is in a sense spread over Class XI to Class XII levels, but the problems under each topic involve high level of difficulty and sophistication. The difficulty level increases from RMO to INMO to IMO.

Previous years Question papers available on the HBCSE website can provide a good idea of the types of question one can expect.

INMO Scholarship

The INMO awardees who successfully complete IMO Training Camp and who pursue B.Sc., or other courses as per the guidelines of the Board with mathematics as one of the principal subjects of study, are eligible to receive a scholarship of National Board of Higher Mathematics, which is at present Rs. 4,000 per month through the period of their undergraduate studies (subject to satisfactory progress). Enhance scholarship would be available for pursuing masters studies in Mathematics.

Mathematical Olympiads at a Glance	
Subject	MATHEMATICS
Applicable For Students From Classes	VIII to XII Studying Students
Stage I	Pre-Regional Mathematical Olympiad (PRMO)
Organizing Body	Mathematics Teachers' Association (MTA) with assistance from IAPT
Release Of Notification & Enrollment	Between 3 rd week of May to 3 rd week of July
Exam Date	3 rd week of August
Result Declaration	Latest by Mid-September
Eligibility	Std. XII and Lower
Age	Should not be older than 19 yrs as on 1st August of the appearing year
Class	VIII to XII Studying Students
Syllabus	Pre-degree college mathematics - Usually of Class XI & XII
Exam Pattern	30 questions
No. Of Examinees	
Selections	Top 300 from each region
Stage II	Regional Mathematical Olympiad (RMO)
Organizing Body	Homi Bhabha Centre for Science Education (HBCSE) through Regional Coordinators
Release Of Notification & Enrollment	In September (with result of PRMO)
Exam Date	Between 1 st and 2 nd week of October
Result Declaration	Latest by Mid-December
Eligibility	PRMO qualified
Age	Should not be older than 19 yrs as on 1st August of the appearing year
Class	Should be studying in Class XII or lower
Syllabus	Pre-degree college mathematics - Usually of Class XI & XII
Exam Pattern	6 Problems - 3 hours
No. Of Examinees	Approx. 13,500 (Across all 25 regions of the country)
Selections	30 top students from classes VIII, IX, X, XI and top 6 students from class 12 + 5 girls irrespective of the number of girls in the top 30
Stage III	Indian National Mathematical Olympiad (INMO)
Governing Body	Homi Bhabha Centre for Science Education (HBCSE)
Release Of Notification	Mid-December to January First Week
Exam Date	Third Sunday of January
Result Declaration	Last week of February
Syllabus	Same as RMO
Exam Pattern	6 Problems - 4 hours
No. Of Examinees	900 (Selected from RMOs)
Selections	30; Additional 5 Girls for participation in European Girls Mathematical Olympiad (EGMO)

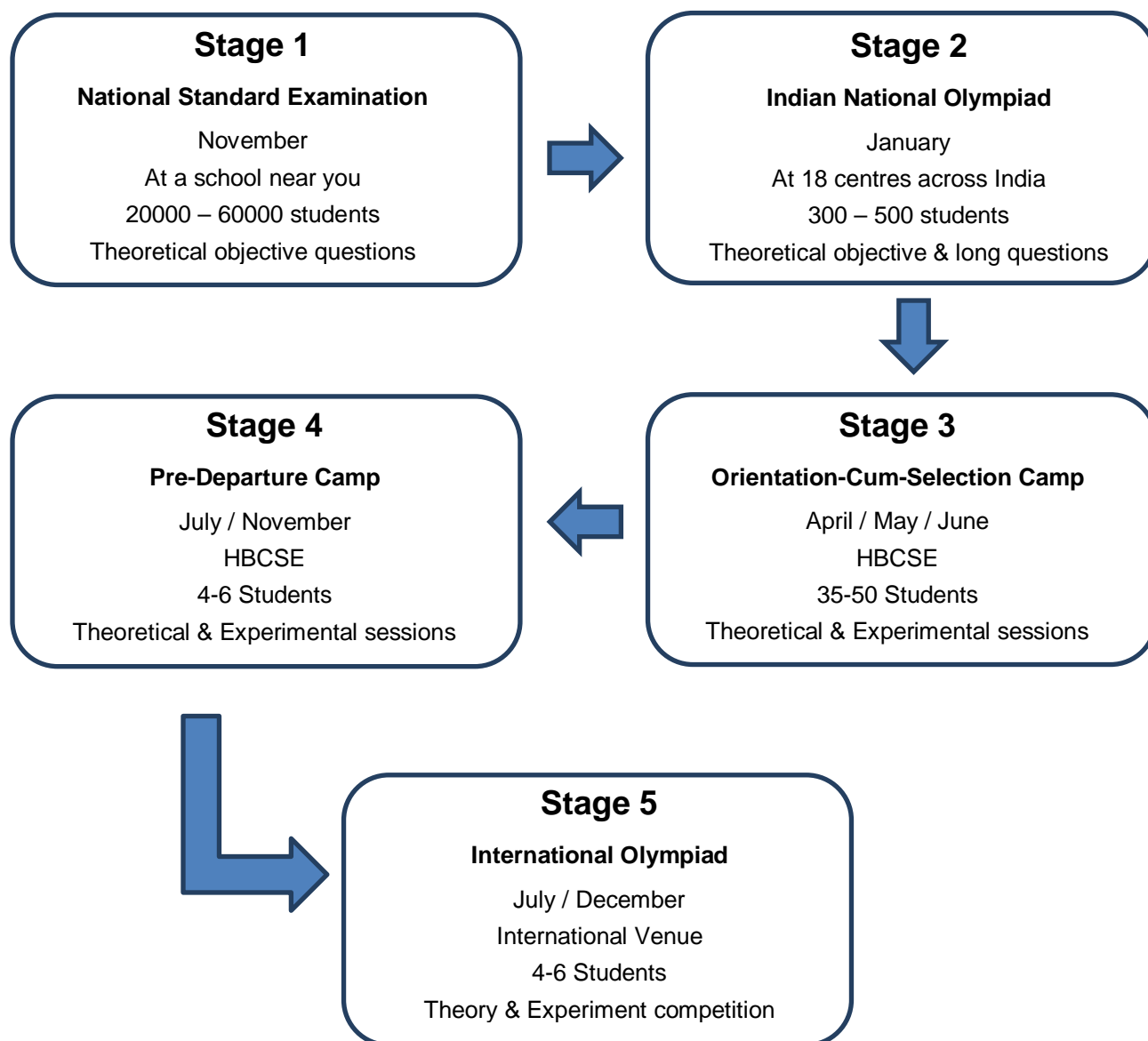
Stage IV	International Mathematical Olympiad Training Camp (IMOTC)
Governing Body & Venue	Homi Bhabha Centre for Science Education (HBCSE), Mumbai
Release Of Notification	January –February
Scheduled Dates	April-May
Selections	Best 6 for IMO and Top 4 Girls for EGMO
Stage V	Pre-Departure Training Camps
Duration	10 Days prior to departure for IMO
Stage VI	International Mathematical Olympiad (IMO)
Exam Date	July
Venue	One member country of the IMO
Team	6 Students with 2 Teacher Leaders and 2 Observers
Exam Pattern	2 Days (4.5 hours per day to solve 3 sums)
Result Declaration	Winners Receive Gold, Silver, Bronze Medals and Honorable Mentions at the Awards Ceremony after the event

- Syllabus can be found at HBCSE website

Science and Astronomy Olympiad Programs in India

HBCSE, which is the nodal agency for the Science Olympiad Program in the country conducts the program in close collaboration with Indian Association of Physics Teachers (IAPT), Association of Chemistry Teachers (ACT), and the Association of Teachers in Biological Sciences (ATBS). The first stage of the Olympiad examinations is conducted by IAPT, while the later stages are the responsibility of HBCSE.

Overview of the Science Olympiads : Five Stages



Stage I: National Standard Examinations (NSE)

Physics: NSEP; Chemistry: NSEC; Biology: NSEB; Astronomy: NSEA; Junior Science: NSEJS

Eligibility:

Programs	Age	Class Studying (In Addition to Age)
NSEP, NSEC, NSEB, NSEA	Not Older than 19 years as on 1 st July of appearing year	Class XII or Lower as on Nov. 30 of appearing year
NSEJS	Not Older than 15 years as on 1 st January of appearing year	Only from Class IX or Class X as on Nov. 30 of appearing year

Syllabus:

Programs	Syllabus
NSEP, NSEC, NSEB	Upto and Including Class XII of CBSE
NSEA	Upto and Including Class XII of CBSE with greater emphasis on Physics, Mathematics and Elementary Astronomy
NSEJS	Upto and Including Class X of CBSE with equal emphasis to Biology, Chemistry, Physics and Mathematics

Exam Details:

Exam	Question Paper	Venue	Language
NSEP	Multiple choice questions of the following types: 1. 3-mark questions, each with only one of the four options correct and wrong one gets a penalty of 1 mark 2. 6-mark questions, each with one or more than one option correct. To get credit, all correct option(s) and no incorrect option(s) should be marked.	Respective NSE centre	Question paper will be in English. (Question paper can be requested in Hindi, Gujarati, Bangla during registration)
NSEC	80 multiple choice questions with negative marking, each with only one of the four options correct.	Respective NSE centre	English&Hindi

Exam	Question Paper	Venue	Language
NSEB	80 multiple choice questions with negative marking, each with only one of the four options correct.	Respective NSE centre	English&Hindi
NSEA	80 multiple choice questions with negative marking, each with only one of the four options correct.	Respective NSE centre	English&Hindi
NSEJS	80 multiple choice questions with negative marking, each with only one of the four options correct.	Only in KV nearest to your NSE Centre	English&Hindi

Enrollment Process:

1. Registration usually starts in the month of August-September.
2. Check with Principal or Head of Department/Institution whether your school/college is a registered centre. If, yes, all formalities can be completed in house.
3. If one's school/college isn't a Registered NSE Centre, a student has to approach a nearby Registered NSE Centre for enrollment. The IAPT (Indian Association of Physics Teachers) website will provide all the relevant information pertaining to locating a Registered NSE Centre and the enrollment process.
4. Details of Examination fees and other details are available on the IAPT Website: <http://iapt.org.in/> or HBCSE Website : olympiads.hbcse.tifr.res.in/

Stage II: Indian National Olympiad (INO)(held in late January)

- Organized by Homi Bhabha Centre for Science Education (HBCSE) - the nodal centre for Olympiad programmes in the country.
- Organized in the Subjects of Astronomy, Biology, Chemistry, Physics (INAO, INBO, INChO, INPO, Junior Science (INJSO))
- Held at about 18 centres in the country

- List of selected students as per criteria given below is published in mid January following the year of appearance in NSE
- National Olympiads for different subjects held on separate days/times to assist students appearing in multiple exams
- All INO examinees are eligible for Travel and Dearness Allowance (TA/DA) as per the norms of the programme.

Eligibility: In order to appear in the Stage II exam a student has to satisfy all the following clauses pertaining to Stage I:

- Eligibility Clause :** A candidate should have scored at least 50% of the average of the top ten scores in a subject rounded off to the nearest lower integer.
- Merit Index Clause :** If a candidate scores 80% of the average of the top ten scores in a subject rounded off to the nearest lower integer he/she will automatically qualify for the Stage II Exam.
- Proportional Representation Clause :** To encourage representation from all States and UT's, quota of representation from each State and UT as per National Talent Search Examination (NTSE) has been used as baseline for selecting students qualifying from registered NSE Centres in that State or UT. If NTSE quota for a state is S and the total number of students appearing in NSE across the country is T, then the total number of students to be selected for INO Stage II Exam from the state would be S/T times 300, rounded off to the nearest higher integer. This number would include those selected on the basis of Merit Index. All selected students must nevertheless satisfy the eligibility clause.
- Minimum Representation Clause :** Subject to satisfaction of Eligibility Clause the number of students selected for INO from each state/UT must be at least one.
- Minimum Total Number Clause :** In event of non-selection of 300 students for a particular subject after application of all applicable clauses, additional students may be selected merit-wise, subject to fulfillment of Eligibility Clause (a) till the target number of 300 is reached.

There will be no other criterion or provision for selection to the Indian National Olympiad Examinations (INOs). Candidates must note that any other organization using the Olympiad title for conducting examinations is doing so unofficially and is not recognized internationally.

- f. **Previous International Representation Clause** : Candidates who have represented India internationally on a previous occasion in the IOAA, IBO, IChO, IPhO need not appear for NSE in that particular subject. Candidates who have represented India in the Asian Physics Olympiad (APhO) and the International Astronomy Olympiad Junior (IAO-Jr) need not appear for the Stage I NSEP and NSEA. A written request in this regard has to be made to the National Coordinator to directly appear for the Stage II INO Exam subject to fulfillment of other eligibility criteria like age, pre-college status etc.

Syllabus

- The syllabus for Stage II INO Examination is broadly equivalent to the NSEs in all the respective subjects. However, considering the status of the examination as a National Selection Exam for the International Stage the problems are set to be non-conventional and equivalent to those asked in the International Olympiads.
- The tests consists of objective as well as subjective questions

Stage III: Orientation cum Selection Camps (OCSC)

- Selection based on performance in INOs for a particular subject.
- The number of selections in a particular subject to be announced before the INO Examinations.
- In the event of a tie at the last position, all the students with the same marks at the last position will be selected for the OCSC.
- Conducted at HBCSE in Mumbai.
- Usually lasts for two to three weeks for each subject.
- Includes several theoretical and experimental tests.
- Selection of best students on the basis of merit and awarded prizes comprising of cash and books based on performance in theory and experiments.
- 4-6 Selections per subject are made for International Olympiads

- **Tentative Dates and Scheduling:**

- OCSC Dates are announced by and on HBCSE on their website (olympiads.hbcse.tifr.res.in) in January
- Dates are chosen keeping National Level Competitive Exams (IIT-JEE or AIIMS) in mind
- All eligible candidates are advised to select Mumbai as their examination centre for any competitive exam that are scheduled during the OCSC period.
- Selection for the National Team for the International Olympiads is subject to fulfillment of criteria such as age limits, pre-university status, medical fitness, parental/guardian consent.
- Each candidate must hold a valid Indian Passport as per the visa regulations of the host country before the commencement of the OCSC

Stage IV: Training of Indian Teams for International Olympiads at HBCSE

- Selected teams undergo a rigorous training program at HBCSE in theory and experiments usually for one/two weeks or longer depending on the subject where special laboratories are set up at HBCSE for Astronomy and Observational Astronomy.
- Experts and Resource Persons from different fields are invited to the training camps.

Stage V: Participation in International Olympiad (IO)

The selected students for each subject are teamed together with 2-3 Teacher Leaders to accompany them for the International Olympiads which are held in a new participating country every year either in the month of July or December each year.

Science & Astronomy Olympiads at a Glance					
SUBJECT	PHYSICS	CHEMISTRY	BIOLOGY	ASTRONOMY	JUNIOR SCIENCE
Applicable For Students From Classes	XII appearing or lower Must not have completed (or scheduled to complete) class 12 board examination earlier than 30 November of the year appearing for the NSEs (e.g 2018 this time)				Std. X and Lower
Stage I	National Standard Examination in Physics (NSEP)	National Standard Examination in Chemistry (NSEC)	National Standard Examination in Biology (NSEB)	National Standard Examination in Astronomy (NSEA)	National Standard Examination in Junior Sciences (NSEJS)
Organizing Body	Indian Association of Physics Teachers (IAPT)				
Release Of Notification & Enrolment	Notification is usually released in the months of July / August with last date of enrolment in 2nd Week of September				
Exam Date	3rd/4th Sunday of November	3rd/4th Sunday of November	3rd/4th Sunday of November	3rd/4th Sunday of November	3rd/4th Sunday of November
Result Declaration	January 1st. Week				
Age	Should not be younger than 14 yrs as on 30th June and not older than 19 yrs as on 1st July (both dates inclusive) of the appearing year				Should not be younger than 13 yrs as on 31st December and not older than 14 yrs as on 1st January (both dates inclusive) of the appearing year
Class	Should be studying in Class XII or lower in the appearing year and must not be appearing in NSEJS				Should be studying in class X or lower in the appearing year and must not be appearing in NSEA/NSEB/NSEC/NSEP
Syllabus	CBSE Standard XI/XII				CBSE Standard X
Types Of Questions	(NSEP only) Part I : 60 MCQ; Single Option Correct; (+3/-1) Part II : 10 MCQ; Multi Option Correct; (+6 if all options correctly marked, no negative marks)			For NSEC, NSEB, NSEA & NSEJS 80 MCQs, Single Option Correct (+3/-1)	
No. Of Examinees	Approximately 30000-40000 students across the country				Approx. 60,000
Selections	Approx. 300 – 400				
Stage II	Indian National Physics Olympiad (INPhO)	Indian National Chemistry Olympiad (INChO)	Indian National Biology Olympiad (INBO)	Indian National Astronomy Olympiad (INAO)	Indian National Junior Science Olympiad (INJSO)
Governing Body	Homi Bhabha Centre for Science Education (HBCSE)				
Release Of Notification	1st./2nd Week of January				
Exam Date	Last Weekend of January				
Result Declaration	1st. Week of March				
Syllabus	CBSE Standard XI/XII				CBSE Standard X
Types Of Questions	Objective and/or Subjective Problems				
No. Of Examinees	Approx. 300 – 400				
Selections	35 (Approx.)	35 (Approx.)	35 (Approx.)	50 (Approx.)	35 (Approx.)

Stage III	Orientation-Cum-Selection Camps (OCSCs)				
Governing Body & Venue	Homi Bhabha Centre for Science Education (HBCSE), MUMBAI				
Release Of Notification	Dates to be announced on HBCSE Website by Mid-January				
Scheduled Dates	April – June				
Stage IV	Team Selection & Training of Indian teams for International Olympiads at HBCSE				
Duration	One - Two Weeks				
Content	Experts from various fields are invited to conduct a rigorous training program at HBCSE in theory and experiments and finally select the best of the lot to participate in the International Olympiads				
Selections	5 Students	4 Students	4 Students	5 Students	6 Students
Stage V	International Physics Olympiad (IPhO)	International Chemistry Olympiad (IChO)	International Biology Olympiad (IBO)	International Olympiad on Astronomy and Astrophysics (IOAA)	International Junior Science Olympiad (IJSO)
Exam Date	July			December	
Team	5 Students 2 Teacher Leaders	4 Students 2 Teacher Leaders	4 Students 2 Teacher Leaders	5 Students 2 Teacher Leaders	6 Students 3 Teacher Leaders
Exam Pattern	2 Days one for theoretical and another for practical			1. Theoretical Exam 2. Data Analysis Exam 3. Observational Exam 4. Team Competition	Three Exams on Three Days: 1. Test examination 2. Theoretical examination 3. Experimental examination
Result Declaration	Winners Receive Gold, Silver, Bronze Medals and Honorable Mentions at the Awards Ceremony after the event				

Some Other Respectable Science Olympiads

We mention below a few other recognized international Olympiads in science disciplines but participation in them is not directly organized by HBCSE.

- 1. Asian Physics Olympiad (APhO):** Participation is organized by IAPT. Students aspiring for this Olympiad must normally appear in the first stage NSEP exam followed by the second stage INPhO exam. The details of further selection and training are decided by IAPT and one may consult their website (www.iapt.org.in).
- 2. International Astronomy Olympiad - Junior (IAO - Junior):** Participation is organized by the National Council of Science Museums (NCSM). Students aspiring for this Olympiad must normally appear in the first stage NSEJS exam followed by the second stage INAO exam. The details of further selection and training are decided by NCSM and one may consult their website(www.nehrusciencecentre.gov.in).
- 3. International Earth Science Olympiad (IESO):** Participation is organized by the Geological Society of India and one may consult their website for more information (www.geosocindia.org).
- 4. International Olympiad in Informatics (IOI):** Participation is organized by the Indian Association for Research in Computing Science and one may consult their website for more information (www.iarcs.org.in/inoi).

Important Policy Regarding Participation in Olympiad Training Camps

In a given year, a student can participate in the orientation/training/selection camp of one subject including the IMOTC and OCSC for the five science subjects. A student who qualifies to appear in more than one subject in INMO/INO will be asked to arrange the subjects in order of preference of attending the IMOTC/OCSC.

Note : To download Brochure of National Olympiad programme visit website olympiads.hbcse.tifr.res.in

Some Popular Olympiads in India conducting by other Organisations

A. SCIENCE OLYMPIAD FOUNDATION (SOF)

A non-profit organization established by leading academicians scientists and media personalities with the aim of promoting science, mathematics and computer education

Prominent Exams Conducted :

- National Science Olympiad (NSO)
- International Mathematics Olympiad (IMO)
- National Cyber Olympiad (NCO)
- International English Olympiad

Note :

- Conducted for students from Classes I to XII
- CBSE, ICSE/ISC and State Board Syllabi are followed
- Registration through school only

	NSO		IMO		NCO	IEO
	Level-I	Level-II	Level-I	Level-II		
Exam Date	November	February	December	February	Dec-Jan	October
Exam Pattern	Logical Reasoning, Science & Achiever's Section	Science & Achievers Section	Logical Reasoning, Mathematical Reasoning, Everyday Mathematics & Achievers Section	Mathematics & Achievers Section	Logical Reasoning, IT & Computers & Achievers Section	Word & Structure Knowledge, Reading, Spoken & Written Expression & Achievers Section

Website : www.sofworld.org

B. SILVERZONE FOUNDATION

Silverzone Foundation is an NGO, which aims in promoting competitive awareness of academics in school children in India & abroad

Prominent Exams Conducted :

- International Olympiad of Mathematics (SZ-iOM)
- International Olympiad of Science (SZ-iOS)
- International Informatics Olympiad (SZ-iiO)

Note :

- Conducted for Classes I to XII between months of November and December in three levels (Level I : School level, Level II : City of School; Level III : New Delhi)
- Questions from CBSE / ICSE or State Board Syllabus

Website : www.silverzone.org

C. UNIFIED COUNCIL

Unified Council is a professionally managed progressive organization in the field of education, established in the year 1998 by eminent personalities from various fields, including some academicians of international repute.

It conducts National Level Science Talent Search Examination (NSTSE).

National Level Science Talent Search Examination (NSTSE) :

- a. Conducted for Classes II to XII generally in December
- b. Questions from CBSE / ICSE / ISC or State Board Syllabus

Eligibility : Open to Students from Classes 2nd to 12th to participate. Registrations can be done either through schools or individually.

Website : <http://www.unifiedcouncil.com/>

NATIONAL TALENT SEARCH EXAMINATION (NTSE)

About: The NTSE is a national level scholarship program to identify and nurture students with high intellect. It is one of the most sought after opportunity for students studying in Class X to gain recognition and display their talent at the national level. The total number of students competing for the coveted scholarship is close to 5,00,000 from which only 1,000 awardees are selected (expected to be increased to 2,000). The NTSE program is the brainchild of NCERT (National Council of Educational Research and Training) and aims to identify and nurture talent in the fields of scientific research in India. The examination is conducted every year for class X students at two levels: Stage-I (State Level) and Stage-II (National Level). However, the students studying abroad are exempted from State Level Stage-I.

Stage-I :(200 questions and 240 minutes)

1. Mental Ability Test (MAT) (100 questions and 120 minutes)

- a. To test the power of reasoning, capability to judge and visualize
- b. Questions from Pattern Recognition, Hidden figures, Coding-decoding, block assembly etc.

2. Scholastic Aptitude Test (SAT) (100 questions and 120 minutes)

- a. Questions in Science (40), Mathematics (20) and Social Science (40)

Points to Note:

- Multiple choice based questions
- Exam for each stage is conducted in two sessions on one day only
- Stage – I (State Level) question paper carries no negative marking with 1 marks per correct answer except Maharashtra where one-third negative marking for incorrect response was applied in academic year 2017-18.
- Candidates scoring above the required percentage and standing within the specified number of ranks (state quota) will be eligible to appear in Stage – II National Level Examination
- Successful candidates are awarded scholarships for pursuing higher degrees in the fields of science post Class XII

Stage-II :(200 questions and 240 minutes)

- 1. Paper I :Mental Ability Test (MAT) (100 questions of 100 marks and duration is 120 minutes)**
- 2. Paper II :Scholastic Aptitude Test (SAT) (100 questions of 100 marks and duration is 120 minutes)**

Questions in Science (40), Mathematics (20) and Social Science (40)

Points to Note:

- No negative marking in both the papers.
- Only candidates qualifying in both the papers separately will be considered for merit.
- Selection of the awardee will be made on the basis of total marks, scored in MAT and SAT.
- There will not be any paper on Language Test.

Rewards: Students who qualify second stage are eligible for scholarship. The amount of scholarship is Rs. 1250 per month for Class XI and XII and Rs. 2000 per month for students studying under graduate and above.

Website : www.ncert.nic.in

FAQs on NTSE

SELECTION PROCEDURE

Q1. This scholarship is available for which all classes?

Only students of Class X can appear for this scholarship exam.

Q2. Does the exam have any eligibility criteria?

Eligibility criteria for Stage-I can vary from state to state. The State/UT may impose any eligibility condition for appearing in Stage-I examination.

Q3. The successful candidates get a scholarship up to what grade?

The awardees studying in Sciences, Social Sciences, Humanities, Languages Commerce, vocational studies and fine arts are eligible to receive scholarship up to Ph.D. level. The awardees studying professional courses in medicines, engineering, technology, management and law, are eligible to receive the scholarship up to second degree level.

STAGE-I EXAM: STATE LEVEL EXAMINATION

Q4. Where can I get the application form for Stage-I?

You need to contact Liaison Officer of your State/UT. Addresses of Liaison Officers are available on the NCERT website i.e. (www.ncert.nic.in)

Q5. Do I have to apply through school only or I can do the registration directly?

You are required to submit your application after getting it duly signed by the Principal of the school before the due date as advertised/circulated by your state /UT.

Q6. In case of any queries regarding Stage-I examination, whom can I approach?

In case of any information /query regarding the details of the Stage-I examination, you may approach the Liaison Officers of your state/UT. NCERT does not entertain Stage-I applications or queries.

Q7. Can the applications be directly sent to NCERT?

No, you are advised to submit your application to your Liaison Officer of State/UT.

Q8. What is the fee for Stage-I examination?

You need to check for fee details as per the state advertisement/ circular. Each State / UT has its own rules with respect to charging of fee.

Q9. Are Stage-I examination marks added to the Stage-II exam conducted by NCERT?

No.

Q10. Does Stage-I exam have negative marking?

No. (except Maharashtra where one-third negative marking for incorrect response was applied in academic year 2017-18)

STAGE-II EXAM: NATIONAL LEVEL EXAMINATION**Q11. Is any fee charged for appearing in the National Level Examination?**

No fees charged for appearing in Stage -II examination.

Q12. After clearing Stage-I examination, do I have to fill and submit another form for Stage-II examination?

No separate form has to be submitted for Stage-II examination.

Q13. How will I receive my Roll Number for Stage-II examination?

The NCERT conveys the Roll Number, the venue and the time for the national level examination to all Stage-I qualified candidates directly through speed post.

Q14. What is the syllabus for Stage-II examination?

There is no prescribed syllabus for the Stage-II examination. However, the standard of difficulty shall conform to the secondary level.

Q15. I am from Gujarat. Will I be getting question booklet for SAT and MAT in Gujarati?

Yes, you will be provided with question booklet in Gujarati language. The tests are also available in Asamiya, Bangla, English, Hindi, Kannada, Marathi, Malyalam, Odia, Punjabi, Tamil, Telugu and Urdu.

Q16. If I have shifted to new location after my Stage-I exam, how will I get my roll number?

In case of any change of address prior to the national level exam, it shall be obligatory on the part of the candidate to communicate the same to the state examining authority, which in turn shall inform NCERT.

Q17. Are there centres for Stage-II exam in all the state capitals in the country?

There are 36 centers across the country. Usually, the candidates belonging to a particular state shall be allotted the center in the same state for the Stage-II examination.

Q18. Is there an interview stage after Stage-II exam?

There is no interview in NTSE. Selection is based on the performance of written test in MAT and SAT.

Q19. How do I get information regarding the result of the exam?

Results will be uploaded on NCERT website. Only the selected candidates shall be informed by letters sent through speed post.

Q20. Does Stage-II exam have negative marking?

No.

National Talent Search Examination (NTSE) at a Glance			
Applicable for students from classes	Studying in Class X		
Organizing body	National Council of Educational Research and Training (NCERT) Website : ncert.nic.in		
Release of notification & enrolment	STAGE I(State Level): July-August STAGE II(National Level): Stage I qualified candidates are directly notified by the NCERT		
Eligibility	Any student studying in class X can appear		
Exam Structure &Date	STAGE I : Conducted by States/UTs in the month of November STAGE II : Stage-I qualifying candidates across the country will be allowed to appear for stage-2 conducted by NCERT in May(second Sunday)		
Result Declaration	STAGE I: January- March(by respective States/UTs) STAGE II: August(By NCERT)		
Exam	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;">Stage I consists of two papers: a. Mental Ability Test (MAT) b. Scholastic Aptitude Test (SAT)</td> <td style="width: 50%; padding: 5px;">Stage II consists of two papers: a. Mental Ability Test (MAT) b. Scholastic Aptitude Test (SAT)</td> </tr> </table>	Stage I consists of two papers: a. Mental Ability Test (MAT) b. Scholastic Aptitude Test (SAT)	Stage II consists of two papers: a. Mental Ability Test (MAT) b. Scholastic Aptitude Test (SAT)
Stage I consists of two papers: a. Mental Ability Test (MAT) b. Scholastic Aptitude Test (SAT)	Stage II consists of two papers: a. Mental Ability Test (MAT) b. Scholastic Aptitude Test (SAT)		
Syllabus &Types of Questions	<p>STAGE I : (no negative marking) a. Mental Ability Test (MAT) (100 Questions) : Pattern, Deduction Based MCQs to test mental ability/speed(120 minutes) b. Scholastic Aptitude Test (SAT) (100 Questions) : MCQ from Mathematics, Science and Social Science broadly based on the prescribed respective State Board Syllabus from Std 9thto 10thclass(120 minutes)</p> <p>STAGE II :(no negative marking) a. Mental Ability Test (MAT) (100 Questions, 120 minutes) b.Scholastic Aptitude Test(SAT)(100 Questions, 120 minutes) MCQs from Science (40 Questions) Mathematics (20 Questions) and Social Science (40 Questions)</p>		
No. of Examinees	Around 5 lakh students across the country in stage-I		
Selections	Approx. 4000 students are selected from stage-I and finally 1000 students are awarded scholarship		
Scholarship Scheme	a. Class XI and XII :Rs. 1250 per month b. Graduates and Postgraduates :Rs. 2000 per month c. Ph.D. candidates : As per UGC norms		

Junior Science Talent Search Examination (JSTSE)

Junior Science Talent Search Examination (JSTSE) is conducted by Science Branch of Directorate of Education, Delhi every year usually in the month of January for the students of recognized schools of Delhi.

Eligibility : Any student of recognized school studying in Class IX in Govt. / Govt. Aided / Public / KV / Navodaya / NDMC and must have secured 65% marks in class VIII.

Examination fee : No examination fee is charged from students for appearing in this exam.

Type of Examination : The examination consists of two papers.

- a. Paper I is of General Knowledge consisting of 50 questions. This paper is of 50 marks and 50 minutes are allotted for this paper.
- b. Paper II is of General Science and Mathematics consisting of 150 questions. This paper is of 150 marks and 150 minutes are allotted for this paper.

Website : <http://www.edudel.nic.in/>

Kishore Vaigyanik Protsahan Yojana (KVPY)

The "Kishore Vaigyanik Protsahan Yojana" (KVPY) is a program started in 1999 by the Department of Science and Technology (DST), Government of India to encourage students to take up research careers in areas of basic sciences, engineering and medicine. The aim of the program is to identify and encourage talented and motivated students to pursue a career in research.

This program aims to assist students to realize their potential and to ensure that the best scientific talent is groomed for research and development in the country. Generous fellowship and contingency grants are provided to the selected KVPY Fellows up to the pre Ph.D. level or 5 years — whichever is earlier. In addition, summer camps for the KVPY Fellows are organized in prestigious research and educational institutions in the country.

The Department of Science and Technology, the nodal agency of the Government has entrusted the overall responsibility for organizing and running the KVPY Program to the Indian Institute of Science, Bangalore and set up a Management Committee and a National Advisory Committee (NAC) for overseeing its implementation. A core committee looks after both the day-to-day and academic aspects of the KVPY Program.

The KVPY fellowship is granted in the following streams:

1. **SA** : Students enrolled in XI Standard in Science Streams having secured minimum 75% marks aggregate in Maths and Science in X Standard Board Exams.
2. **SX** : Students enrolled in XII Standard in Science Streams having secured minimum 75% aggregate in Maths and Science in X Standard Board Exams and are required to score a minimum of 60% in aggregate in Mathematics and Science subjects in XII Standard Board Examination.
3. **SB** : Students enrolled in the 1st year of undergraduate program in Basic Sciences and having secured a minimum of 60% marks in aggregate in Mathematics & Science subjects in the XII Standard Board Examination. In the 1st year final examination of the degree course they must secure 60% marks before taking up the fellowship, if awarded.

SELECTION PROCEDURE

Aptitude Test: After scrutiny of application forms and meeting the eligibility criteria for various streams, all eligible students will be called for a written aptitude test conducted both in Hindi and English at different centers across the country on the **First Sunday of November**. The details of the venue of the aptitude test for the eligible students and their seat number will be published in the KVPY website during the second week of October (Online mode only).

Interview: Based on the performance in the aptitude test, short-listed students will be asked to appear for an interview which is the final stage of the selection procedure.

The merit list is based on 75% weight-age for Aptitude Test marks and 25% weight-age for the interview marks in all the streams.

FELLOWSHIP : The fellowship awarded as per the current scheme is:

BASIC SCIENCES	Monthly Fellowship	Annual Contingency Grant
SA/SX/SB - during 1st to 3rd years of - B.Sc./B.S./B.Stat./B.Math. / Integrated M.Sc. /M.S.	Rs. 5000	Rs. 20000
SA/SX/SB - during M. Sc. / 4th to 5th years of Integrated M.Sc. /M.S./M.Math./M.Stat.	Rs. 7000	Rs. 28000

Exam Dates :

The advertisement for the KVPY Fellowship appears in all the national dailies normally on the Technology Day (May 11) and the second Sunday of July every year.

Note : For question papers of previous years along with answer key please visit website : www.kvpy.iisc.ernet.in/

FAQs on KVPY

Q1. Can I take a computer based test in Hindi?

Yes.

Q2. What is the syllabus for the aptitude test ?

There is no prescribed syllabus for the aptitude test. The aptitude test aims to test the understanding and analytical ability of the student than his/her factual knowledge.

However, students are tested for the syllabus up to class X/XII/1st year of

B.Sc./B.S./B.Stat./B.Math./Int. M.Sc./M.S. as applicable.

Q3. Can I avail the KVPY Fellowship along with a merit scholarship?

KVPY does not allow its Fellows to receive simultaneously fellowship /scholarship from more than one_source, either government or private. In case they are in receipt of any other fellowship or scholarship, they will have to relinquish it in order to avail the KVPY Fellowship.

Kishore Vaigyanik Protsahan Yojana (KVPY) at a Glance	
Applicable For Students From Classes	Science students of class XI, XII and graduation first year
STREAMS	a. SA : Class XI, b. SX : Class XII, c. SB : Graduation First Year
ORGANIZING BODY	Indian Institute of Science
FUNDING BODY	Department of Science and Technology, Government of India
RELEASE OF NOTIFICATION & ENROLMENT	July–August
EXAM DATE	1 st Sunday of November
RESULT DECLARATION (EXAM)	December
INTERVIEW DATE	January, February
RESULT DECLARATION (INTERVIEW)	April
EXAM PATTERN	a. Aptitude Test (75% Weightage in Merit List) – Online mode b. Interview (25% Weightage in Merit List)
ELIGIBILITY:	
CLASS	a. SA : Enrolled in Class XI in the appearing year b. SX : Enrolled in Class XII in the appearing year c. SB : Students enrolled in the 1st year of undergraduate program in Basic Sciences namely Physics/Chemistry/Mathematics & Biology leading to B.Sc./B.S./B.Stat./B.Math./Int. M.Sc./M.S.
MARKS	a. SA: Minimum of 75% (65% for SC/ST/PWD) marks in aggregate in MATHEMATICS and SCIENCE subjects in the X Standard Board examination b. SX: Minimum of 75% (65% for SC/ST/PWD) marks in aggregate in MATHEMATICS and SCIENCE subjects in the X Standard Board examination and a minimum of 60% (50% for SC/ST/PWD) marks in aggregate in SCIENCE subjects (Physics/Chemistry/Biology) in the XII standard Board Examination c. SB: Minimum of 60% (50% for SC/ST/PWD) marks in aggregate in SCIENCE subjects (Physics/Chemistry/Biology/Mathematics) in the XII Standard Board Examination. In the 1st year final examination of B.Sc./B.S./B.Math./B.Stat./Int. M.Sc./M.S. they must secure 60% (50% for SC/ST/PWD) marks before taking up the fellowship, if awarded
SYLLABUS	There is no prescribed syllabus for the Aptitude test. The exam aims to test the understanding and analytical ability of the student than his/her factual knowledge. However, students are tested for the syllabus up to class X/XII/1st year of B.Sc./B.S./B.Stat./B.Math./Int. M.Sc./M.S. as applicable
TYPES OF QUESTIONS	a. SA : MCQ - Science and Maths - All Compulsory b. SX & SB : Four sections in Part I (Physics, Chemistry, Biology and Mathematics) and four sections in Part II (Physics, Chemistry, Biology and Mathematics). Candidates are allowed to answer any THREE of the four subjects in Part I and any TWO of the four subjects in Part II
NO. OF EXAMINEES	1 to 1.5 Lakh Students across the country
SELECTIONS	600 - 700 Students (approx.) are awarded fellowships
FELLOWSHIPS	SA/SX/SB -during 1st to 3rd years of B.Sc./B.S./B.Stat./B.Math./Integrated M.Sc./M.S. : Monthly Fellowship - Rs.5000 ; Annual Contingency Grant - Rs. 20000 SA/SX/SB - during M. Sc. / 4th to 5th years of Integrated M.Sc./M.S./M.Math./M.Stat. Monthly Fellowship - Rs. 7000 ; Annual Contingency Grant - Rs.28000

Engineering – A Career full of Opportunities

Reasons to choose Engineering as a Career

A career in engineering has always been one of the most important choice of the dynamic youth of this country. The challenges and the varied explorative opportunities that it offers fascinate the youth beyond any dimension. An Engineer commands respect in society for his/her innovative ideas. A talented and skilled engineer can set-up his own enterprise to achieve financial freedom and also contribute towards the development of society and nation.

To 'engineer' literally means to "make things happen". Engineering is about the design and production of useful products and services. Engineering know-how converts scientific knowledge into technology and then technology into successful innovation. Many seemingly simple aspects of our daily lives have been conceptualised, designed and developed by an engineer.

There are numerous reasons for choosing engineering as a career, listing a few, which are as follows:

Engineers are the architects of society & nation

The skyrocketing buildings, numerous industrial plants, small and large scale industries are the brain child of engineers. These industries provide employment to a chunk of the population thus contributing to nation development and bridging the employment gap.

Engineers have diverse careers opportunities

The history of civilisation is the ready reckoner which proves that engineers have diverse career opportunities. Engineers have contributed to their communities, countries, colleagues and civilisations by making tools, machines and countless other things to help people improve their lives apart from making progress by leaps and bounds. The diversity in engineering offers you an array of opportunities ranging from IT to Biomedical Equipment and Mining, from building roads to space travel.

Engineers are in great demand

Skilled engineers are in great demand across all engineering sectors. Scarcity of skilled technocrats is one of the barriers to business growth and delivery. We need more engineering personnel to build roads, conceptualize climate change projects, modernize our defence force and the list goes on.

Shortage of skilled engineers means job security for the expert ones.

Engineers get to work in innovative jobs

Innovation and creativity is the integral part of Engineering. So, being an engineer means you get to try out new technologies like artificial hearts, developing environmentally sustainable buildings. Engineers design and build virtual reality worlds, soccer fields or new plants. Engineers discover and patent new materials that may allow us to set up colonies on Mars someday or even develop an AI powered assistant which can take care of all our menial jobs during the day. Engineers are involved in making the future a reality.

Engineers have job opportunities everywhere

Engineers work everywhere: in cities, regional and rural communities, even remote wilderness areas. Some engineers work in business offices, classrooms, others in factories or research labs; some work outdoors or even in outer space. Some engineers have undertaken double degrees and go into medicine, law, business management, or in policy making. Trained as an Engineer, you have got numerous career opportunities and bright future prospects.

Qualities Required in an Engineering Aspirant

- Good in Maths and Science
- Enjoys puzzles, have problem- solving aptitude
- Invites academic challenges and is a good time manager
- Is curious and wants to know how things work
- Wants a career that's interesting and varied
- Enjoys working with other creative and smart individuals
- Would like to make a difference in the world
- Having strong IQ and analytical ability
- Good communication and presentation skills
- Ready to learn, unlearn and re-learn

Post Engineering Careers

Engineering is the threshold to enter the technical world. A graduate engineer has host of opportunities for higher studies, in research sector as well as in private sector. If a graduate engineer is unwilling to pursue higher studies in engineering, he/she has a lot of opportunities ahead in other sectors also, and can go forward equally to shape their career.

Some of the post engineering career opportunities are given below.

1. Civil Services – Indian Administrative Service (IAS), Indian Police Service (IPS), Indian Engineering Services (IES)
2. Jobs in Public Sector Units (PSU) offering diversified, challenging and stable career options
3. Research and development
4. Teaching
5. Defence Services
6. Private Sector :
 - IT Sector – Google, Facebook, Microsoft
 - Metals & Mining – Vedanta, Tata Steel
 - Heavy Engineering – L&T, ABB, Alstom

Selection of Right Engineering College

IITs and NITs are well known for their teaching standards and therefore they are the first choice for students, who wish to pursue engineering. However, every student is not capable of qualifying the tough entrance tests that these institutes conduct to admit students. These students find it challenging to choose a good engineering college.

Here are a few tips about how to choose a good engineering college.

Institute

The first thing to verify before applying to a particular college is its accreditation and affiliation. In India, National Assessment and Accreditation Council (NAAC) holds value for engineering colleges, they need to be approved by University Grants Commission (UGC) and affiliated to Directorate of Technical Education (DTE) and All India Council for Technical Education (AICTE).

Faculty

Another important factor you need to verify is the faculty profile of the college. You can visit the college website to check their qualification, experience and information about where they have studied. A faculty member who is active in research will normally have a better understanding of the latest developments in the area and therefore be in a position to explain better. The number of faculty members is also important as the faculty to student ratio is an important aspect affecting the quality of education.

Infrastructure

This is also one of the important factors that students need to check because the environment in the institute also has a huge impact on academic performance. Besides the classrooms, laboratory, library, recreational facilities, canteen etc. can be checked by actually visiting the institute. A fully-residential campus usually provides a better learning environment.

Internships & Placements

Ultimately, every eye is fixed on placements and internships because career opportunities start right from here. Students can check the record of the companies that visit the institute for campus placements. You can talk to the students to find out details about the number of students getting placed in good companies; the packages being offered to them; the institutes or organisations offering internship and the kind of training they are provided over there.

JEE (Joint Entrance Exam) – In & Out

JEE (Main):

- A common entrance for admission to all IITs, NITs, DTU, CFTIs etc.
- JEE (Main) consists of 2 papers: Paper-1 is a 3hrs paper on MCQs of Physics, Chemistry and Math. Paper-2 is optional for aspirants of B. Arch and B. Planning.
- The Admission in NITs, IIITs, DTU, CFTIs is completely on the basis of performance in JEE (Main) from 2017 onwards.
- From 2019 and onward, the JEE (Main) will be conducted twice before admissions in the next academic session.
- The examination for all candidates will be conducted in online (computer based) mode only.
- JEE (Main) 2019 will be conducted in multiple sittings and a candidate will have an option of dates to choose from. Scores of different candidates in multiple sittings will also be equated using standardization techniques.

JEE (Advanced):

- Top 2,24,000 students of JEE (Main) are selected to appear in JEE (Advanced) for admission to all IITs and ISM, Dhanbad.
- JEE (Advanced) consists of 2 papers of 3hrs each-both consisting Physics, Chemistry and Mathematics.
- Admission to IITs is based on category AIR of JEE (Advanced) subject to the condition that such should have secured at least 75% marks in the 12th Class examination, or candidates are in top 20 percentile of their respective boards in applicable category.
- For SC/ST candidates the qualifying marks would be 65% in the 12th class examination.
- The examinations for all candidates are conducted in online (computer based) mode only.

Myths & Reality about Engineering Entrance Exams

MYTHS	REALITY
JEE is very difficult and tough to crack	The only reason why you could find any exam tough is that you are under prepared. If you do not study for the exam, you are bound to be worried about the result, and will find it tough to crack. One has to plan and work smart with dedication, utilizing his time and capacity to the fullest possible extent. Once the preparation is done, practice of solving past year papers can be of great help.
Burning midnight oil for few months before JEE will take care of everything. This is a general misconception that majority of students have, especially the ones who were unable to begin preparing for the entrance well before time.	Inadequate sleep can also have negative impact on your retention capacity. Instead it would be better if you prepare a schedule where you get up early in the morning and distribute the time for self-study subject wise.
Coaching is a substitute for hard work. Majority of students and even parents believe that once you have got enrolled yourself in a coaching class, half of your work is done and you can be assured that you will get into IITs.	Even if you have enrolled in the best of coaching classes, all they can provide is quality coaching, study material and mock tests, but reading and understanding the study material, studying regularly with dedication and practicing mock tests is totally under your control. This is what affects your eventual performance at the real entrance.
I am good for nothing if I don't get into IITs. Majority of engineering aspirants believe that IITs is the only institute, which can make their future bright. There have been cases of students reaching the extent of committing suicide because they were unable to get into IITs.	While IITs is definitely one of the best institutions, there are a number of good institutions across the country offering engineering that also have good teachers and a track record placement.

Medical – A Career endowed with respect

Reasons to choose Medicine as a Career

DOCTORS, in our society, command incredible respect as they save lives of people who, in turn, regard them next to GOD. Many bright students yearn to become doctors every year, with a dream to command this coveted admiration.

Even in this materialistic age, doctors are respected in all walks of life. We observe in our daily life how they are revered as they bring a smile on the faces of millions by saving their lives. Saving lives gives immense gratification as to serve man is to serve God.

A doctor rejoices every time a patient returns home happily, after being cured of fatal diseases and owe heartfelt gratitude to them eternally. A suffering patient trusts his/her doctor hoping for a new life and when they do recover-they express their gratitude from their heart. This sort of satisfaction cannot be experienced in any other profession.

Choosing a career in medicine with a positive attitude and the intent to serve people will give you immense satisfaction and gratify your soul for saving lives. Those who wish to fulfill their ambition of becoming doctors are most welcome to join the medical fraternity with a resolution to serve the people.

Career Coach

Selection of career is one of the most important decisions in life that has the potential to bring radical changes in one's life. Selection of medicine as a career should be done with due deliberation as most of the students do not know the intricate details of this profession. They need to know the finesse and the pros and cons of this profession.

On being asked about the reason behind pursuing medicine as a career, majority of students assert "Make a difference, impact lives and help people." Although, these are obvious motivating factors behind pursuing medicine as a career, there are several other factors that one needs to be aware of while analyzing one's career choices.

Characteristics of a Rewarding Career:

- Service: Provides you an opportunity to help people
- Knowledge: An ever-expanding need for earning new skills and information
- Action: Allows you to be at the forefront in challenging situations, take decisions and make things happen
- Respect: Your work and contributions are important to individuals and the community
- Security: Enables you to earn a good living and provides a consistent source of income and secure future

- **Mobility:** Your skills, knowledge and expertise are in great demand across the world
- **Flexibility:** Offers you a wide variety of career options

There are several careers that may offer you the opportunity to help people and make a difference. However, the challenge before you is to find the career, which is right for you in all counts. If you are committed to serving people, give them a new life by relieving them from pain, medicine as a career is the best choice for you.

Medicine as a profession requires full commitment because you are supposed to serve patients with patience, communicate effectively and listen to their problems, develop relationships, engage in complex problem-solving and learning throughout your lives. Medicine as a career is utmost challenging but financially secure and personally rewarding that gives you eternal gratification—a rare gem of satisfaction.

Advantages of Being a Doctor

- Job Stability
- Incredible Income
- Social Recognition

Post MBBS Careers

MBBS is the threshold to enter medical world that opens multi-dimensional career options apart from core medicine.

If a MBBS degree holder is not interested to study medicine further, he/she has a lot of opportunities ahead in other sectors too.

Some of the post MBBS career opportunities are given below:

Core Medicine

1. Post Graduation in Medicine (MD/MS), in preferred stream / Specialization
2. Higher studies in US through USMLE or PLAB from UK

Applied Science

1. Medical Informatics
2. Genetic Engineering
3. Medical / Pharmaceutical Research

Management

A MBBS degree holder can pursue MBA in Hospital Management and seek career in :

1. Hospital Management
2. Management Level Jobs in the Pharmaceutical Industry
3. Health / Medical Insurance Sector
4. Public Health : WHO/UNICEF

Civil Service : Indian Administrative Service (IAS), Indian Police Service (IPS), Indian Foreign Service (IFS) etc

Qualities required in a Medical Aspirant

A medical student should display certain qualities different from the majority of students because they will be life-savers. Their accountability falls between life and death. One incidence of casual approach may lead to a patient losing his/her life. So, they should be more calm and composed compared to the majority of students. Some qualities given below are mandatory for medical students to inculcate.

- Emotional stability
- Unquestionable integrity & ethical standards
- Unusually smart and problem solver
- Sense of genuine concern for patients during their illness
- Motivated primarily by idealism, compassion and service for life
- Ability and willingness to learn from others
- Observant and committed to quality & safety
- Good communicator and a patient listener
- Adaptable & ability to collaborate with others

Misconceptions about Being a Medico

To be a Medico is not only the 'most sought after' pursuit but also one of the most challenging one due to a plethora of reasons as enlisted below. We have mentioned the top five of them here. Do you believe in any of these?

MISCONCEPTIONS	REALITY
"Only a genius can be a Medico. It is not for me"	Please be assured that NEET is a test to check your basic knowledge up to class XII and your aptitude to perform under time constraints. Even an average student can come out as a winner with well executed plans and strategic efforts. Most of those making entry into Medical Colleges belong to the so called 'average' population.
"It is about strong Academics. I must have an Extra-ordinary % even to think of it."	This is one of the dominant myths which still prevails despite many Medical Entrance Toppers having average academics. There is only a basic qualifying requirement of 50-60% in PCB. Besides, percentage plays no role in deciding your admission in Medical Schools. Medical schools require hard working students. In essence, they are assessing potential. And entrance tests are also designed on that pattern.
"I must study 12 Hours a day to crack it."	Medical Preparation requires consistent efforts on day to day basis rather than Marathon hours with long gaps in between. It is not the number of hours that matter. It is the approach in those hours of hard work. Even four to five hours of focused study may suffice. So study qualitatively rather than quantitatively.
"I am a State Board Student. NEET is not my Cup of Tea."	This is one of the biggest questions in the mind of State Board Students. NEET is conducted by CBSE which follows NCERT Syllabus. Compare the syllabus of NCERT with State Board, which is almost the same. The main difference is in sequence.
"It is not possible to balance School and Aakash together."	Within a few days of the commencement of the courses, many students have felt that they cannot balance Entrance Preparation with XII Board. It is due to the requirement of extra focus to strategize in the beginning. Once you will make a good plan, it will be very easy for you to make sync between School and Aakash Coaching. Remember, the top rankers generally are those who start early and hence perform well in XII Board exam also.

National Eligibility cum Entrance Test (NEET) – In & Out

Central Board of Secondary Education, Delhi conducts the NEET - UG for admission to MBBS/ BDS courses for the seats under 15% all India quota in Medical Colleges. The features of the exam are as follows:

1. The NEET-UG Entrance Examination consists of one paper containing 180 objective type questions (four options with single correct answer) from Physics, Chemistry & Biology (Botany & Zoology).
2. The duration of paper is 3 hours.
3. Aspirants should complete age of 17 years at the time of admission in MBBS/BDS courses on or before 31st December of that year.
4. Candidates under General Category must have passed in the subjects of Physics, Chemistry, Biology and English individually and must have obtained a minimum of 50% taken together. In case of SC/ ST/ SC-PH/ SF-PH the minimum marks required is 40% and 45% for General- PH.

All India Institute of Medical Sciences (AIIMS) – In & Out

All India Institute of Medical Sciences (AIIMS) was finally established in 1956, as an autonomous institution of national importance through an Act of Parliament and it conducted entrance test for the admission of students to the MBBS/BDS courses. The features of the exam are as follows:

1. The competitive Entrance Examination for admission to the MBBS Course for AIIMS New Delhi and other Eight AIIMS is being conducted through a Computer Based Test (CBT) [Online mode of examination].
2. The Competitive Entrance Exam for MBBS course will have one paper consisting of 200 Objective Type (Multiple Choice and Reason-Assertion type) questions from Physics, Chemistry, Biology, General Knowledge and Aptitude.
3. The distributions of questions are as follows: Physics-60, Chemistry-60, Biology-60, General Knowledge-10 & Logical Aptitude-10 marks.
4. The duration of the examination shall be 3½ hours (three hours and thirty minutes).
5. The candidate should have attained or will attain the age of 17 years as on the 31st of December of the year of admission.
6. Candidates should have passed the 12th Class under the 10+2 Scheme/ Senior School Certificate Examination (CBSE) or Intermediate Science (I.Sc.) or an equivalent Examination of a recognized University/ Board of any Indian State with ENGLISH, PHYSICS, CHEMISTRY and BIOLOGY as subject.

7. General and OBC candidates who have obtained a minimum of 60% marks in aggregate in 4 subjects of ENGLISH, PHYSICS, CHEMISTRY and BIOLOGY are eligible for AIIMS test.
8. For SC/ST/PWBD candidates should have secured at least 50% marks in aggregate of 4 subjects.

Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER) – In & Out

JIPMER has been declared as an Institution of National Importance by a Parliamentary Act, i.e. JIPMER, Puducherry, Act, 2008. It imparts Undergraduate (UG), Postgraduate (PG) and Super-specialty Medical Training through a working hospital with bed strength of 2134 and a Nursing College.

The features of the exam are as follows:

1. Jawaharlal Institute of Post graduate Medical Education and Research (JIPMER) for MBBS entrance exam will consists of 200 single response type Multiple Choice Questions in the subjects of Physics-60Q, Chemistry-60Q, Biology-60Q, Logic & Quantitative Reasoning-10Q and English & Comprehension-10Q.
2. Each CORRECT RESPONSE shall be awarded FOUR (4) MARKS.
3. ONE (1) Mark will be deducted for each INCORRECT RESPONSE.
4. ZERO mark will be given for the question NOT ANSWERED.
5. Duration of test is 2 ½ hrs.
6. Candidate must have passed in the subjects Physics, Chemistry, Biology / Biotechnology and English individually obtaining a minimum of 50% mark.
7. The minimum age should be 17 years at the time of admission.

Frequently Asked Questions related to Medical & Engineering Entrance Exams

Q.1 What is the difference between Board Exams and Entrance Exams?

Particulars	Board Examination	Entrance Exam
Parameter of Assessment	Basic concepts.	Application of basic concepts.
Nature of exam	1. Descriptive where merit is tested on knowledge and understanding of the subject. 2. Examination of absolute	1. Purely elimination test where merit is tested on reflex to a question, intelligence and smartness. 2. Examination of relative performance.
Question-time Parity	Enough time is given to write the answer.	Response time is very short.
Nature of preparation required	A student needs to work hard and practice to consolidate the basics.	With basic concepts, a student is required to practice with ascending difficulty level of questions and make strategy to attempt maximum.

Q2. I am in class X. I seek a career in Medical/Engineering but I am unable to decide which stream to pick. How do I choose the stream?

It totally depends on your likes & dislikes. Medical and Engineering as a profession has very bright career prospects. If you are strong in Biology & at the same time feel attracted towards serving the society as a Doctor, go for a career in Medical. On the other hand, if you are strong in Mathematics & have the fire to succeed with new advancements of technology in your professional career, then go for Engineering. Decide early & start preparing in a very strategic manner .

Q3. How will I manage my Board studies & preparation for Medical/Engineering Entrance at the same time?

Boards preparation is a sub-set of preparation for competitive exams. If you are preparing for competitive exams, your basic concepts have to be thoroughly clear so that you can apply them to various situations. If the basic concepts are clear, Boards are automatically covered. You just need to have a regular practise on the pattern on which Boards Exams are conducted.

Q4. Which books should I follow?

The Board studies help you to learn, consolidate and practice your concepts of subjects whereas preparation for Medical Entrances/JEE requires rigorous study of the same subject while gathering all possible knowledge of the particular topic and application of the same. You just need to feel confident and work hard under a Mentor who will guide you to success.

Q5. How to prepare for these exams?

Step - I Learn the basics of all the subjects.

Step - II Consolidate the basics. Practise them.

Step - III Practise the questions of the subjects.

Step - IV Start practising all types of questions with increasing level of difficulty.

Step - V Prepare a strategy to answer maximum questions within a stipulated time period.

Step - VI Start practising on Mock Papers based on the strategy.

Step - VII Practise and change the strategy if required.

Above all, guidance from experienced Mentors is required to chase your dream.

Q6. How much time is required to put in per day to get a good rank in NEET/JEE ?

It varies from person to person. It solely depends on how much time you require to put in every day for the best preparation for an Entrance Test. Apart from regular school studies, you need to put in some extra hours for the preparation which may vary from 4-6 hours per day depending on your grasping ability and level of concentration.

Q7. I can not concentrate on my studies. How to develop concentration during studies?**Doing one thing at a time.:**

Do one thing at a time with your complete undivided attention in order to develop concentration. If you are thinking about planning studies for your exam - for the next 30 minutes or so, just think of that alone. Do not let your attention wander to other things during this time.

Un-clutter your mind by writing down :

While doing something important often unrelated worries invade your mind that affects your concentration. The best way to get rid of it is to pen it down with date, time and way you want to deal with the problem. Thus you can unclutter your mind and concentrate at the task at hand.

Be task specific :

Before sitting down to study for exams, be clear what chapter you want to study now, how much time do you intend to study etc. Be as specific as possible and move on to some other task only after you complete this.

Break task into smaller parts :

Breaking a task into smaller parts will make it seem less daunting and help you approach it with more positivity. Make a goal of finishing one chapter at a time.

The Aakash Advantage

Infrastructure -Setting a Benchmark in the Industry

Air-Conditioned Campus with All Basic Amenities

- Best rated campus amongst all nationalized coaching institutes with Pan India presence.
- Air-conditioned classrooms and CCTV surveillance with basic amenities like clean toilet and pure drinking water ensure that students can give full attention to academics without any discomfort.

Library

- Well stocked library at all our centers with sufficient copies of all course and reference books with regular updation of stocks to ensure latest copies of all reference and course books are available.

Technology Enabled Attendance System

- ID Card with Barcode technology for attendance to save precious class time.

Academic Environment – Nurturing Excellence

Study Material

- Precise, Self-sufficient and updated study material reduces the pressure on students to follow multiple books.
- Content in study material – Blend of facts and concepts to hold the students attention and keep them interested in the subjects.
- Assignments accompanying each chapter enable the students to test themselves and give the finishing touch to their preparation of a particular topic/chapter.
- Additional Questions Banks to cover all types of questions which may potentially come in the competitive exams.

Classroom Teaching

- Faculty Team
 - Faculty team comprising of a healthy blend of experience and youth.
 - Selection of faculty members through one of the most stringent selection procedures followed in the industry today.
 - The selection process begins with a Test, after clearing which the selected candidates are required to appear for a demo lecture before the Head of Department of the concerned subject and other senior faculties of the subject.
 - After clearing the demo stage, the selected candidates are inducted in the system.

- If the inducted faculties are trainees, they undergo a series of tests and demo lectures to assess the class readiness.
 - Final Induction of the trainees happens after the trainees perform satisfactorily in the training period.
 - This ensures that the faculty team is richly endowed with professionals who score high on both subject knowledge and experience.
- Classroom size is optimally planned for which there are not more than 50-70 students in each class for which the faculty member can focus on each student.
 - Systematic, time bound classroom teaching system with topic-wise teaching hours allotted and progress strictly monitored by Academic Heads.
 - Session systematically structured so as to allow students who are in schools and also repeaters to plan their study with enough time for Board Preparation and Self-Study.

Doubt Clearing Facilities

- Adequate number of faculty members in the system to ensure availability of faculty members from all streams for doubt clearing at any given time.
- Doubt clearing sessions are always one to one and can be fixed by the students either directly with the faculties or through the front desk/Academic Co-ordinator.

iTutor Lab

- In a one of its kind initiative in the industry we have facilitated the setting up of iTutor Labs in all our campuses.
- The labs are equipped with work-stations loaded with pre recorded video lectures on all topics covered at Aakash.
- This facility enables students to make up for loss of classes due to unavoidable circumstances.
-

Tests (Unit, Term and All India Aakash Test Series (AIATS))

- Utmost priority to assessment empowers the students to check their weak areas and work on them accordingly and serves as a tool to benchmark themselves against the competition.
- **Unit Tests:**
 - Held for a one and a half hour duration after completion of every chapter/s.
 - Ensure that students are always kept on their toes.
 - Assessment tool for chapter/topic wise preparation.

- **Term Test:**
 - Held for three hour duration after every 3-4 Unit Tests.
 - Level of Questions similar to the main exams.

- **All India Aakash Test Series (AIATS):**
 - Serves as a rehearsal for the main exam as thousands of candidates appear in the exam in every stream for which the exam is held.
 - Informs the students about their level of preparation against the real competition they will face in the main exam.
 - The tests are structured in a way so as to cover all the national level competitive exams and also to the state level exam for the respective state.

Feedback System

- Student feedback - an integral part of the system in Aakash.
- Feedback is taken regularly to ensure that quality of teaching is maintained in Classrooms.
- Feedback is taken on OMR sheets without the student being required to disclose his/ her identity.
- Feedback evaluation through scanner and based on the students inputs, faculty members are advised accordingly, thus helping them strengthen their delivery.

Award System

- Initiated to reward the top performers in AIATS.
- Serves as a motivational tool for performers to carry on their efforts and for others to match up to them.

Special Motivational Sessions

- Aakash Institute invites the best speakers in the country to motivate the students and give them better insights about life in general. Some of them are:
 - Mr. Simerjeet Singh - International
 - Youth Motivational Coach who specializes in supporting the success journey of students and organizations inter-nationally.
 - Mr. Rajesh Fernando – Guinness World Record holder in Communicating Values through the art of illusions. His shows leaves an everlasting impact on the lives of the students at Aakash.
 - Mr. Rajiv Thakkar – Nationally acclaimed Corporate trainer & Management Guru who has shaped the lives of many students and parents in his career.

- Annual Award Ceremony
 - Star studded Annual Award Ceremony for the successful candidates to recognize their efforts and bring them face to face with the current batch of students. We have invited some renowned persons to motivate the students.

Communication System – Unparalleled

One of the most transparent systems in the industry with multiple channels of communication to ensure that parents and students are informed well in advance of all related matters.

- Automated attendance system informs parents through SMS about absenteeism of their wards.
- Schedule of tests and modification in class timings or scheduling of extra classes are routinely communicated to the students and parents accordingly.
- Performance of the student in every test and exam is communicated to their parents through SMS so as to keep them in the loop about their ward's preparation for the competitive exam.
- Important notifications about all competitive exams are given utmost priority and information about them is passed on to the parents and students as soon as they are declared officially.
- Parent Teacher Meetings are organized so as to provide a platform for parents to share their thoughts and discuss all matters concerned with the career development of their ward.
- Apart from the official Parent Teachers Meetings our system enables parents to inquire about their wards performance and discuss with the faculty members anytime and any number of times they choose during the academic year.
- In case the students who are in the campus want to leave early for some urgency, they are permitted to do so with prior approval of the front desk only. Parents are normally called to verify the genuineness of the student's urgency back home.

Corporate Social Responsibility

- Through a phenomenal initiative – Aakash National Talent Hunt Exam (ANTHE) we seek to provide an opportunity for talented students across the country from any strata of society to prove their talent and avail 100 per cent scholarship for preparation at Aakash.

Glimpses of Yearlong Classroom Courses Offered by Aakash

Course Name	For	Admission Criteria		Month of Admission
		Direct Admission	Syllabus & Pattern of Admission Test	
Integrated Classroom Course for Olympiads & Class IX	Class IX Studying students	Above 70% marks in aggregate/ B1 grade & above in Science & Maths in class VIII	Based on Class VIII syllabus of Science & Maths.	November - April
Integrated Classroom Course for Olympiads, NTSE(X)	Class X Studying students	Above 70% marks in aggregate/ B1 grade & above in Science & Maths in class IX	Based on Class IX syllabus of Science & Maths.	November – April
Two Years Integrated Course for NEET	Class XI Studying students	Min. B1 + B1 in Science & Maths/ 70% aggregate marks in Science & Maths in IX/ X	Based on Class IX syllabus of Science & Maths.	For Early batch- January - April For Late batch- May – July
Two Years Integrated Course for JEE (Main & Advanced)	Class XI Studying students	Min. B1 + B1 in Science & Maths/ 70% aggregate marks in Science & Maths in IX/ X	Based on Class IX syllabus of Science & Maths.	For Early batch- January - April For Late batch- May – July
One Year Integrated Course for NEET	Class XII Studying students	Min. B1 + B1 in Science & Maths/ 70% aggregate marks in Science & Maths in X	Based on Class XI syllabus of PCB	November – April
One Year Integrated Course for JEE (Main & Advanced)	Class XII Studying students	Min. B1 + B1 in Science & Maths/ 70% aggregate marks in Science & Maths in X	Based on Class XI syllabus of PCM	November – April
Regular Course for NEET	XII passed Students	70% aggregate marks in PCB in XII/ 70% aggregate marks in Science & Maths in X	Based on Class XII syllabus of PCB.	April – July
Power Step Course for JEE (Main & Advanced)	XII passed Students	70% aggregate marks in PCM in XII/ 70% aggregate marks in Science & Maths in X	Based on Class XII syllabus of PCM.	April – July

EVENTS CALENDAR

Month	Mathematical Olympiad		Science & Astronomy Olympiads		NTSE		KVPY	
	Sequence	Event	Sequence	Event	Sequence	Event	Sequence	Event
April	8	International Mathematical Olympiad Training Camp (IMOTC) for IMO	5	Orientation-Cum- Selection Camps (OCSCs) Start for International Olympiads		NTSE Stage II Exam		
May	1	Notification starts for Satage I: Pre Regional Mathematical Olympiad (PRMO)	-		4	-	1	Notification Released
June	9	Pre-Departure Training Camp for IMO	6	Team Selection & Training of Indian Teams for International Olympiads at HBCSE		NTSE Final Results		-
July	10	International Mathematical Olympiad	7	International Physics, Chemistry, Biology Olympiads (IPhO, IChO, IBO)	5	-		-
Aug.	2	PRMO Exam	1	Notification starts for Stage I: National Standard Exams NSEP, NSEC, NSEB, NSEA, NSEJS	1	Enrolments Start for NTSE Stage I: State Level		-
Sept.	3	Result of PRMO and RMO registration opens		-		-		-
Oct.	4	RMO Exam Across All Regions		-		-		-
Nov.		-	2	Exams: NSEP, NSEC, NSEB, NSEA, NSEJS	2	NTSE Stage I Exam: State Level	2	KVPY Exam
Dec.	5	RMO Results Declared. Registration for INMO Exam	7	1. International Olympiad for Astronomy and Astrophysics (IOAA), International Junior Science Olympiad (INJSO)		-	3	Result Declaration
Jan.	6	INMO Exam	3	1. International Olympiad for Astronomy and Astrophysics (IOAA), International Junior Science Olympiad (INJSO) 2. Registration for Stage II Stage II Exam Held: INPhO, INChO, INBO, INAO, INJSO	3	NTSE Stage I Result	4	Interview Starts
Feb.	7	INMO result Declared		-				-
March		-	4	Result Declared: INPhO, INChO, INBO, INAO, INJSO			5	Final Result Declaration

Disclaimer : The information provided in the booklet may change as per the notification of governing bodies of different exams.