

NBTC: National Biology Talent Contest



National Institute of Biotechnology and Genetic Engineering (NIBGE), Faisalabad, Home
← Institute

Dr. Sarwar Khan, PS, NIBGE Faisalabad
Coordinator →



Achievements:

Pakistan participated with its team in 17th International Biology Olympiad (IBO 2006) in Rio Cuarto Argentina in July, 2006. One of its students from our far flung area of Dera Ghazi Khan, Muhammad Sher Koh won a Bronze Medal. Ms Abeera Ali won a Bronze Medal in 18th IBO, 2007, Saskatoon Canada



NBTC-1: Study sessions

Reminiscences...

...a page from a diary

Faseeh Shahab

'NBTC Training Camp': the very name refreshes some wonderful memories of the time that we spent in NIBGE, Faisalabad in 2004-05!

On Sunday, 5th September 2004, when I departed for Faisalabad with my friend Asfand, I could not have imagined that the next week would be one of the best weeks of my life. It was a long journey of seven hours from Peshawar to Faisalabad. We reached Faisalabad in the afternoon, and if the quotation: 'First impression is

the last impression,' is anything to go by, then we were in trouble. Our first impression was not good, especially due to our accommodation. Just five hours after reaching Faisalabad, I was thinking of taking the next bus back to Peshawar

The only thing that kept me there at that time was the idea: *“This is what I, along with my teacher Prof. Atta-ur-Rehman Anjum (Edwardes College, Peshawar) have been working hard for throughout the summer... what would I say to him if I left?”*

But things soon changed for the better and we got our accommodation shifted inside the campus. For all my complaining, I, along with my three room-mates arguably got the *best* accommodation. However, we learnt the bad news at night from our Coordinator Dr. Sarwar that we would not be able to participate in the IBO (International Biology Olympiad) to be held in China due to compulsion by the IBO to participate as observer before participation with the full team.

Throughout the camp, our routine was very hectic and we had very little time to sleep. We used to wake up at 6:30 am, get ready and then go for breakfast. The lectures were from 9:30 am till lunch, with a tea break in between. The toughest part was the ‘evaluation tests’ (quizzes) we used to have before the lectures, in which all the questions were based on the topics that were to be taught to us in the lectures after the test! We were told that the quiz scores would be included in our final evaluation. These quizzes were a burden on our happily lived life. After departments and laboratories in interesting part of our stay in NIBGE. like the ‘Plant Biotechnology’ gave us an opportunity to see the place in these laboratories and also, like PCR, gel-electrophoresis, DNA ‘electron microscope’ was particularly every chapter of our text-book with so to actually see it really fascinated us. In the evening there were sessions with visiting eminent scientist who had achieved great distinction in his field of research. We were extremely lucky to have the opportunity to interact with the likes of Dr. Arsalan (Quaid-e-Azam University, Karachi), Dr. Kausar A. Malik (PAEC) and many others. This session was followed by dinner and then we were free till 8:30pm.



Well, this was our official schedule, but the real fun used to be after 9 pm. Our so-called ‘2nd session’ would start with table tennis, and not-so-surprisingly, the most anticipated match would be, Asfand vs me. Then, we used to go on an hour and a half walk of the campus. Finally, a game of cards to go along with gossip and discussion would be played. Then, if anyone were still fresh, they would study. It was difficult to sleep before 3am.

Apart from studying, the real highlights of the camp were learning a card-game *Mafia* from a visiting senior NPTC alumnus, Saad Zaheer (currently in MIT), pillow-fights with our neighbours Maziyar and Khurram, Arsalan’s great sense of humor and some real (I won’t call anyone a nerd or geek, since we all belonged to the same category) ‘talented’ students from Rawalpindi. We had our final evaluation exam on the ‘Day of Judgment “DOJ”’ and while going back to Peshawar; I had a firm belief that I would get selected for the next camp.

During the second week of March, 2005 we had our final training camp. The number of students was down from fifty to twelve. The competition was heating up but we, the boys, were more intent on repeating our activities of the last camp. Unfortunately, the 2nd camp turned out to be rather boring as far as our extra-curricular activities were concerned. The previously hectic routine of the last camp was changed so that we had to endure only five hours of study in NIBGE, from 9:00 am till lunch. After that, we were free to go back to our

guest-house, where we had access to cable TV. We believed this to be a conspiracy against us; to favor the girls (and the results showed exactly the same: three girls and only one boy-me- were selected as finalists). So, not surprisingly we spent most of our time watching movies.

The most notable incident of this camp was Dr. Sarwar's surprise visit to our guest-house, just two nights before our final evaluation test. Sir used to complain that we use to come about 30 minutes late as compared to the girls for the lectures. Mr. Wajid, (who was our 'warden', but at the same time to us, was more like a teacher who taught us card-games and innovative ways to kill time) used to defend us by saying that we weren't able to get up early as we study till late night. Just imagine the situation: its 11:30 at night, we were all playing a game of cards with music blaring on the TV, and jokes being cracked when suddenly Dr. Sarwar comes in! And the first line that Sir said was: 'Acha to yeh parhai ho rahee hai?' We were all speechless (and embarrassed too).

On the whole, these were two weeks to remember, especially the 1st camp. It gave us the chance to learn about biology in depth and to interact with eminent professors and scientists in the field of biology. We met equally talented students from other renowned institutes of the country and made some really good friends. Today, most of us are together in groups of 2-3 in various institutes of great repute both within the country and abroad; the majority of us pursuing careers in medicine and research, a Chartered Accountancy and even some in engineering (surprising?). Our laboratories inspired many students to opt for careers in research. Also, different machines and processes in these labs, the names of which we across in our books, gave us a better understanding of them. Another that I learnt was that there are quality research institutes in the country far behind to those of other countries and we do have some wonderful those we met at NIBGE as well as Dr. Sarwar himself. Competing students from all over the country was the most thrilling aspect of the be selected as one of the top four students was overwhelming. The experience of these camps helped me believe in myself and now, I can confidently say that if you believe in yourself, there is nothing you cannot achieve



few in visits to the to see the regularly come notable thing which are not scientists like against the best camp; then to

(The author, Faseeh Shahab, is currently a student of Khyber Medical University, Peshawar enrolled in a 5-year MBBS program and aims to become an Orthopaedic Surgeon. He qualified for NBTC-1 and despite being in the top four; he did not appear at the Olympiad because that year, Pakistan were not eligible to send a team for IBO)

NSTC: Seasons in the Sun

Alina Shahab

National Science Talent Contest (NSTC) has become a name to reckon with over the years. It has grown from a label to a famous brand. NSTC holds its charm in influencing lives of aspiring youth in a subtle yet ironically distinct way.

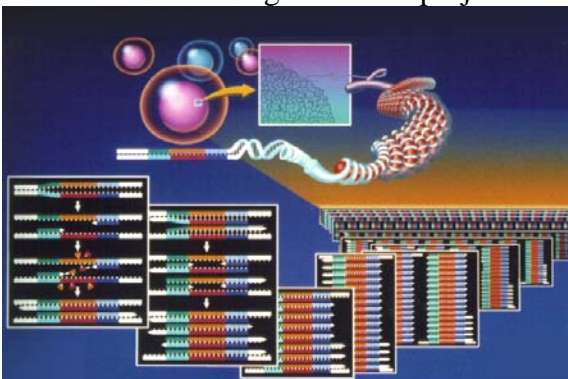
I cried, I shied, I learnt and I burnt the midnight oil with so many like me at NBTC-3. After being selected for the first camp, I had no idea what to expect. My preliminary impression was of an arduous study camp with no vital output, but this was where I was about to be proved wrong. Our camp was at NIBGE (National Institute of Biotechnology and Genetic Engineering), Faisalabad. NIBGE is located adjacent to NIAB (National Institute of Agricultural Biology), Faisalabad and both stand out from the rest of the city with their open, clean area and serene appearance. The air is laden with a sense of grandeur and significance, which is justified considering the national assets that lie within. It is somewhat an opportunity of a lifetime to visit as it is not accessible otherwise due to tight security.

During the first camp, our accommodation, lectures and meals were arranged at NIAB since NIBGE was not available to cater to our requirements. Nevertheless it was great at NIAB. They did their best to make our stay as comfortable as possible.

The study camp aimed at stirring our minds to think beyond the obvious, imparting greater information regarding several topics and preparing us for the evaluation test. Our lectures were appropriately delivered keeping in view these objectives. Since we were freshly out of our first year having only a basic idea about various domains of biology, digesting all the new knowledge was exhilarating but tough. It proved to be a big help in the year ahead.

To give us a break from the study routine, we had a trip to McDonald's, Faisalabad and some of the best time was spent en-route: singing, laughing and giving a break to our minds. Even though the trip was just a day before the DOJ, everyone was in high spirits. We came back 'home'; stuffed and ready to face the challenge ahead. The test marked the end of our five-day first camp. We said our goodbyes, unsure whether we would meet again.

We were short listed for the 2nd camp, which is always more rigorous, as it is a step closer to the Olympiad. We focused on areas which need to be emphasized upon for our national benefit e.g. biotechnology and ecology. The tour of NIBGE and NIAB had been saved for the second camp. We were given a brief overview of the research work going on by the people who were working on those projects. This made it all the more interesting, since they had paramount their fields. We were shown sensitive then I had read about only in books, like and PCR (Polymerase Chain Reaction) to see such ingenious Pakistanis platform, working for the sole cause of crises going on in our country, thinking offers some refuge from the depressing hope that we are on our way to tour was definitely one of the highlights experience. We were given lectures by people and the discussions truly added bulk to all the knowledge we were gaining.



knowledge regarding equipment which till electron microscopes etc. I was awestruck gathered on a single our nation. With the back about that place conditions and revives development. The of the NBTC highly accomplished

On a lighter note, I remember enjoying every minute of that time. We all felt so close to each other despite the fact that we had met only once before. All the jokes, the pranks and desperate attempts to study helped in bringing us closer than the first camp managed to. Our parties, shadow tricks, two year old games, screaming, shouting, making fun of everyone, doing all sorts of crazy stuff, keeping the no-sense nicknames, cracking lame jokes and then laughing till our sides ached are the moments which will always be cherished in our hearts. This is one of the added benefits; and in my point of view, the most important aspect of NSTC is that you make such great friends during the whole experience.

It is the result of these treasured friendships that our Alumni Association has become so successful and we continue to work together for a cause, which gave us each other and a new outlook. I would like to mention the efforts of all the Alumni who work out of their precious time to promote NSTC and its cause. It is a great honor to be a part of the Association.

The whole NBTC experience felt like a breath of fresh air after staring at dry text books. Those two weeks broadened my way of thinking and analyzing things to a considerable extent. The best thing about the whole experience was getting a chance to interact with some of the most brilliant minds from all over the country; as Dr. Sarwar puts it: "the crème of Pakistan". It not only broadened my horizon but also played a key role in fraternizing with the youth from all provinces without any seeds of parochialism that are being sowed to

deteriorate us as a nation. NSTC held little importance for me until I had the chance to experience it and I believe that it has influenced the life of every person who's been a part of it. The careers choices and future plans of a lot of people I know, who have been a part of NSTC, have a distinct shadow of the 'Talent Contest'. NSTC has been an inspirational roller coaster ride. I would particularly like to mention our teachers who were committed to the hilt in making the best out of us.

Why does NSTC play an important role in our lives? Maybe because it gives you a sense of confidence, a realization that you are capable of achieving so much more than you can imagine. The impression carved by NSTC in our national pride may not seem very deep at the moment because of its relative recent inception but it'll undoubtedly go a long way in the time to come.

Had I understood what the programme stood for, I might as well have worked harder for it. But at least now I'm not under pressure to 'win the gold'.

(Alina Shahab qualified for NBTC through the third NSTC test in the year 2006. She is currently pursuing medicine.)

Ten Things about NSTC: an Insider's View

Fatima Khurram

1. Like they say at the introductory presentations, NSTC isn't all about studying. NSTC is a lot about making friends, meeting people, gaining experience and of course having good, plain fun! (Please bear in mind that all this is secondary to the study during the camps. If you study well enough then you can have all the fun you want!)
2. Getting into NSTC isn't that easy. You don't need to be a master in just one subject, because you're screened on the basis of your performance in all subjects (as minor subjects) and in the subject of your choice (as major subject). So you need to be severely, and seriously, the best in Pakistan to get selected
3. The camps conducted in NSTC aren't just about judging how well you understand concepts. The people at NSTC have a rather different approach. They judge you for, apart from your performance in theoretical tests, your confidence, class participation, discipline and commitment. NSTC is not another rote-learning promotion program
4. Among others, a motive NSTC has is to encourage students towards research and specialization in their subjects. During the time at NSTC, all students have experienced a broadening of horizons. NSTC enables students to think and grow beyond the normal boundaries of stereotypical education.
5. The competition you will face at NSTC is going to be extremely rigorous, but at the same time friendly. NSTC encourages students to study in groups, sharing and exchanging knowledge
6. The study at NSTC is extremely conceptual, enabling students to participate competitively in the respective Olympiads. Besides, the experience offers tremendous assistance in higher and professional studies.
7. NSTC is a purely merit based campaign; your connections with ministers and the likes won't help you here!
8. Being in NSTC is going to be extremely useful for your future plans. Any university you apply to, will take NSTC on your résumé as a major plus point.
9. Being a part of NSTC is a great experience. The NSTC alumni are all like a family; to quote an alumnus, "NSTC isn't a one time thing. It's a life time commitment". Once you're in, you don't want out.
10. NSTC alumni are more than willing to help and guide anybody who wants to be like them or to know more about the program. Feel free to bug any of us...

(Fatima Khurram qualified for NBTC-3 and represented Pakistan in 18th International Biology Olympiad in Saskatoon Canada)

Training Camp Guidelines

Faseeh Shahab

“A week long training camp during the summer holidays, and that too in Faisalabad! Who’ll go there? at least not me!” If, by any means, this idea pops into your head, then you are advised to at least take a look at the following lines:

The name: ‘Training Camp’ may sound a bit boring and tedious, but believe me; it is by no means what it sounds. Instead, for most of you, it would certainly be one of the best weeks of your life. You’ll get a chance to learn new things, develop a different view on *how* and *why* to study (at least in biology) and equally important, a chance to interact with fellow students. And if you are lucky enough to visit the different labs and departments in NIBGE, then I am sure you will be intrigued and surprised to see so much research work going on in Pakistan.

I would advise you to go through your F.Sc/A-level biology books before the camp, so that you may have some background knowledge about the topics that will be taught during the camp. It would be helpful if you could get your hands on CD’s with good animations of various biological processes like photosynthesis, mammalian physiology, protein synthesis etc. Time is very limited in the camp, making it impossible for the teachers to go through all the topics; so preferably, you should go through the topics beforehand. During the camp, you should study the official book (which will be given to you in the camp: Campbell’s ‘Biology’, 7th Ed.). The basic idea of NSTC is to develop interest about science in students, so don’t try to memorize topics but instead, try to form your concepts.

NCTC: National Chemistry Talent Contest



HEJ Research Institute of Chemistry, University of
← Karachi, Karachi, Home Institute

Dr Khalid M Khan, Coordinator NCTC, Associate
Professor, Coordinator →



Achievements:

Pakistan participated with its team in 38th International Chemistry Olympiad (IChO-38) held in South Korea in July 2006. In 39th IChO 2007, Moscow Russia, Pakistan’s performance was improved and our team won two Bronze Medals: The winners, Anita Pabani started her undergraduate studies at University of Toronto and Shaina Khan, her MBBS at Agha Khan Medical College.

NCTC: “Nerd” Camp...?

Neelum Maqsood

So does “National Science Talent Contest” sound like a match of a bunch of geeks with big cylindrical glasses from all over Pakistan? Does it sound like a competition of nerds with their heads buried in big fat books? Think again. The truth is quite contrary. The week 3rd July to 9th July in Karachi at HEJ University was for most part a stimulating, refreshing and an ultimately joyful week spent with a lot of entertaining people.




Dr Atta Ur Rehman, Dr Abdullah Sadiq, Dr Iqbal Choudary, Dr Shaiq Ali and Dr Khalid M Khan during the NCTC-1 prize distribution ceremony



Dr. Iqbal Choudary, Dr Khalid M Khan and participants of NCTC-1 planting a tree at HEJ Research Institute

The residence for us girls was in a guesthouse. The boys got to stay in a hostel about which no one had pleasant stories to tell. For once, females were given a privilege. The NCTC team greeted us with scrumptious Sindhi Biryani, the specialty of Karachi. Abandoning us at the guesthouse, the NCTC team left. One by one, girls started pouring in and about twelve of us were left to stare at each other’s faces. Who knew that after a week we would be as close to each other as old buddies? Finally after a long wait, we were transported from our guesthouse to the much awaited introduction session in the university campus. About 35 boys were comfortably seated before us: the male youth of Pakistan.

The next day we registered ourselves as formal participants of the competition, got our “designer bags” (they had “NCTC” in print on it) and awarded to us as we posed for the then shown around the university respects to the founder of Pakistan,  wore our badges. Certificates were camera. It was quite an honour! We were campus. After that, we paid our due Quaid-e-Azam by going to his mausoleum. In the museum, we got to see his Cadillac (man, that car was smashing!)

Finally, the dreaded written examination loomed in front of us. Yes, here it is admitted that we did study. Well, it turned out to be pretty easy: all o-levels. Next, we had a quiz that was absorbing and enjoyable through and through. It worked on elimination rule. Who gets an answer wrong is bid farewell. Girls managed to creep into the top seven. But the first four were boys (damn!). Still, the answer to that is simple. God decided to help the guys. Really, the quiz was all about luck. Get an easy question and you are the winner.

We went to many industries. We will surely remember Petrochemical Industries as they gave us gift packs about which the most commendable part is a CD about prayers; the Abbot factory gave us lunch; the Benham Publishers gave us carbonated drinks (we just lost count of the number of carbonated drinks we had in a day; we had a drink with lunch, with dinner, were offered a drink wherever we went). We were also taken to the Planetarium where we sat in a historical plane **that was significant because it was** a hijacked plane. We were made to watch quite an “engaging” magic show movie on the TV screen in the plane. Inside the planetarium, we learned a little about stars and more about heavy and difficult Urdu vocabulary (as the man telling us about

stars seemed more like an Urdu poet). We then went for sightseeing as well: had a view of the **sea at sea view**. Literally it was just a view; they did not let us go far towards the sea. All we were supposed to do was to marvel at the blue sea from a great distance. We were taken to The Point and Park Towers. We had ice cream there with our own money, as the NSTC alumni (the old NSTC participants) were not eager to treat us lavishly.

We had a practical activity in one of the labs of the university. During the practical activity almost everyone was peeking at each other's work. I guess that is where everybody got his/her marks deducted. On the same day we had a movie show. It was expected that it would be about weird chemicals and static haired scientists...but no, it was the movie "Jinnah": a treat to watch_ emotional and touching.

Presentations were last of the scary parts. A "group" of five members were assigned a "group" in the periodic table. Every group used PowerPoint to present their assignments. Usually one member of the group spoke while the rest answered the audience's questions. As a side note, in the presentations, we learned about fake accents and witnessed future chemistry F. Sc teachers! The last day, we met Mr. Edhi, a simple and a humble man yet motivating in some ways. We openly asked questions about his organization. A motto we learned from him was "never mind". It is a tendency of a man to forgive people, to ignore pressures and to move on. Another cool thing about him was his moderate point of view. He acknowledged his weakness and accepted that sometimes you tend to follow Satan as well...and why not, it is perfectly human. The test is in fighting Satan, not denying his presence.

Last of all, we were given shields and gift packs that had a big fat chemistry book in it, a calculator and a few decoration pieces. The winners of the round were announced. I should really praise Dr. Khalid M. Khan, who has the greatest hand in organizing such an orderly event with everything taking place on time, with every inconvenience been dealt with and with every meal being so generously served.

On the last day, we autographed the shirts we had gotten as gifts from Benham Publishers for each other. There was a general downcast atmosphere. All the memories were creeping in our minds: staying up till 4 in the morning laughing on absolutely crazy jokes of our friends from Rawalpindi, about 7 girls sleeping in the same bed, the late night much yearned for "junk food" parties, all of our friends especially Fatima, Areeba and Komal talking in "pashto accent" acquired from Hajra, the day when one of the guys mistakenly kept his hands on one of the girl's shoulders in Abbot Industry (as everyone was wearing overalls and "cool caps" and boys could not be distinguished from girls) etc. It seemed amazing how in one week people from different cities in Pakistan: Islamabad, Lahore, Karachi, Bahawalpur, Peshawar and Rawalpindi, had managed to communicate so effectively with each other. I hope we stay in touch. The sad part was however that there was a general lack of communication between the boys and girls which, at this level, seems mystical and disappointing. We are all peers and should put social pressures aside while communicating in an educated forum.



NCTC-3 participants with Dr Atta-Ur-Rehman, Dr Iqbal Choudary and Dr Khalid M Khan



NCTC participants enjoying their free time in Computer Lab

After reading the article notice how little it is about chemistry. Yes, this camp was much more than just plain study. Learning chemistry had never been more fun. Next time if I hear people say that chemistry is a dry subject, I know exactly how to answer them.

(The author Neelam Maqsood is the participant of the first ever National Chemistry Talent Contest)

NMTC: National Mathematics Talent Contest



School of Mathematical Sciences (SMS),
Government College University, Lahore, Home
← Institute

Dr. Allah Ditta Raza Choudary , DG SMS, Chief
Coordinator NMTC, Lahore →



Achievements:

Pakistan participated for the first time in 46th IMO in year 2005 in Mérida, Mexico; Dr. A. D. Raza led the team with Mr. Ahmed Mahmood as deputy team leader and six participants. In 47th IMO 2006, Slovenia, Zaeem Hussain won an Honorable Mention for Pakistan. In 48th IMO 2007, Zaeem Hussain won a Bronze Medal and Sohaib Afzal an Honorable Mention for Pakistan in Hanoi, Vietnam.



NMTC-1 participants having a cup of tea with Dr
A D Raza Choudary



Certificate awarding ceremony of NMTC-1

Why Numbers Matter

Syed Hasan Riaz

I remember laughing out hysterically, as I exited the examination room at Govt. College, Karachi, an hour before the invigilators would announce time for the NSTC-2 paper. I remember not caring to view the results of the test online when they were published, sometime in mid-April. I remember how utterly dumbfounded I was to find my name in the list of candidates who had been selected to train at the 2nd NMTC camp at the School of Mathematical Sciences (SMS), Lahore.

The screening test was not very difficult, but I had underperformed and abandoned all hope for a place in the prestigious camp. But, then ... you know ... as luck would have it!

So now there lay ahead an NMTC camp, for which most of us had already planned a week of fun and entertainment, with absolutely no regard to Math whatsoever. The four of us from KGS couldn't care less about getting through to the next round. And once the foreign professors opened their mouths and poured forth a river of incessant gabble, which they said was Math, but seemed like nonsense to us, any last wisps of shimmering light were vanquished. I mean ... who cares what the representation of 1297 is in modulo-19? Why should I fret over the Legendre Symbol? What can anyone possibly gain by proving a specific case of Casey Theorem? With pessimistic answers to the afore-mentioned questions in my mind, I pursued my objective of having a fun week in Lahore, rather than tormenting myself like those unhappy souls locked up in room-219 who were rote-learning (YES! ROTE LEARNING!!!) all the mathematical concepts their little minds could cram. Amir Hotel was an enjoyable place and we spent the week playing cards, throwing buckets of water at people sleeping soundly and unaware in their rooms, indulging in chess, filling the hotel lobby with our resounding yells of "GOOOAALLL" as we carried out football tournaments in that cramped little space, and evading the hotel-manager's glares, so as to avoid incurring his wrath.

So you can imagine how surprised I was when my name was announced on the short-listed candidates for the next camp. This was not down to sheer luck; it was a product of the professors, who had, without me knowing it, embedded their mathematical principles in my subconscious with their expertise in teaching.

Enter Camp Number 2. The pool was down to roughly 30 students, with 15 surviving from the first NMTC camp, and another 15 added by the SMS faculty via a test of their own (now known as the National Mathematical Olympiad – NMO). The SMS explained that this addition was necessary to provide much needed competition to the candidates. A close informer within SMS (who shall remain un-named), however, pointed out that the first batch of candidates had scored so badly, Chaudhry Allah Ditta Raza (the Principal of SMS; we just called him ADR to save time), had contemplated throwing out the entire batch and replacing them with NMO candidates (this probably explained how I qualified). Thankfully, he had stopped short and granted everyone an equal chance.

The new camp was scheduled to be 2 weeks long, rather than the traditional one-week routine. Professors from all over Romania, Moldova, Hungary and other seldom-heard-of former-USSR states had convened at Lahore to impart valuable information that would eventually help us fledglings win some prestige for the motherland (i.e. Pakistan, not Russia). All the professors had a few aspects in common: they were professionals; they had won more IMO gold medals than we had thought possible, they knew their stuff like the back of their hands, their teaching style was impeccable, and their names were ridiculously difficult to pronounce.

The day would start with a tasteless breakfast at Amir Hotel (they should have a sign proclaiming that one should eat at one's own risk). Then an SMS van (The trip on the van was probably the thing we looked forward to the most. It gave us a chance to sing at the top of our lungs for no apparent reason at all. On one particular occasion, our van caught fire due to a faulty battery. It was nice to see the old thing burn in the middle of Mall Road) would carry us over to the School, where we would be taught Geometry and Algebra for 4 consecutive

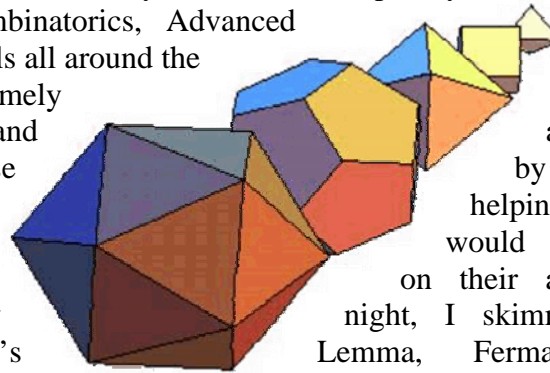
hours from 9 am to 1 pm. A one-hour break for food and football and then class resumed for another 4 hours, focusing on Number Theory and Combinatorics (my favourite topics by far).

Then we would be handed a dozen problems (by each professor) which they expected us to solve by the following morning. Yeah right! Like we were some sort of robots that viewed sleep as an irrelevant activity and would rather spend our precious time deciphering the cryptic obscurities of the Mathematical World than watching HBO in our hotel rooms.

Nonetheless, the math was pretty exciting (yes, I know that sounds nerdy), and most of us ended up solving the problems. We thought, we had gotten this far, it would be crazy to blow it at this stage. However, even those motivating thoughts couldn't keep us from indulging in a game or two of Trump or Bridge every few spare minutes we got in between classes.

After the first week, 15 students were asked to go home (my name was not among them), and the other 15 asked to stay on for the 3rd Camp. Reluctantly sacrificing another week of school, I remained.

The curriculum got tougher. Our task was made all the more harder by the fact that Calculus, a subject that comprised 90% of our A-level Mathematics Syllabus, was completely absent from the IMO curriculum. Number Theory, Combinatorics, Advanced Geometry and Algebra are topics generally taught in high-schools all around the world, except Pakistan. All the same, our professors were extremely polite in not minding it one bit to reiterate the same concepts again and again to our confused brains. Everyone was committed to the cause by now. It was a classic case of every man for himself. Instead of helping each other with problems, as was the case previously, students would shut themselves up in their rooms, working like complete dogs on their assignment sheets. Satisfying myself with four hours of sleep every night, I skimmed over the day's lecture material: Congruencies, Titu's Lemma, Fermat's little theorem, The Fundamental Theorem of Algebra, The Pigeon-Hole Principle, Strong and Weak Induction, Galois Theory, Euclidean Geometry, the 9-point circle, and what-not! Every few minutes the realization that I might not make it to the final six dampened my hopes, but the sight of my peers eccentrically blowing their wits on the same study material, drove me on.



The camp ended with me expecting to go through, and voila! One fateful day, the result was announced and I made it to the final team (albeit in 6th position – that meant I was on the border line and had just made it!). The lucky six, four boys (Saad, Sarim and Zaeem and I; two from KGS, one from St. Patrick's, and one from Aitcheson) and two girls (Hafsah and Afsah; The City School and St Michaels), were recalled for a final intensive training camp in the heat of June, to prepare for the eventual battle. We were so focused on the Math; we even sacrificed the 2006 Football World Cup.

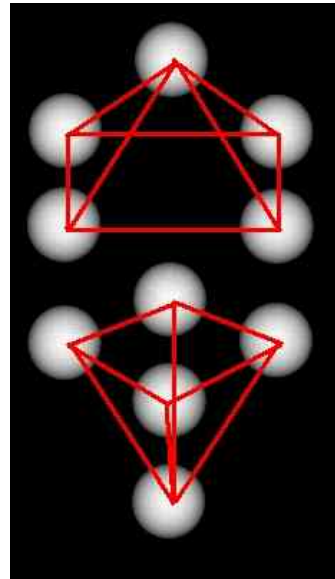
A week before the IMO, the team was ready. The professors bid us adieu and flew to Ljubljana, Slovenia, ahead of us. We were to arrive on the 9th of July at Ljubljana International Airport. (Unfortunately, due to some error in travel documents, one girl from the team could not make it to the IMO. We were already handicapped). Anyway, that didn't diminish our spirit. We were resolved to extract the maximum possible enjoyment from this trip ... and score some points for the team, as well.

Slovenia is a beautiful little country that earns most of its income through tourism and forestry; nestled in Central Europe, bordered by Italy, Croatia, Hungary, Austria and the Adriatic Sea. Our campaign was kick-started after we were introduced to our guide: a bubbly, yet slightly superficial, 19-year old Slovenian blonde by the name of Masa. Apparently, the IMO was not just about putting pen to paper: the program included a country-wide tour of Slovenia, its caves, its beaches, its historic monuments etc. Masa apparently knew nothing

of jet-lag and ignoring our indirect references towards our exhausted states of body and mind, set us out on a tour of the city, on foot. Thankfully, the whole city was no larger than Alladin Water Park and by sundown we had navigated every nook and corner.

The night before the actual test, us boys were watching a horror movie (to relax) when Sarim remarked that this was nothing compared to the horror movie we would have to endure the following day. How true.

The IMO test is scheduled over 2 days. Each day you are given 3 questions and 4.5 hours to complete them. 4.5 hours was too little time in our case. Our Romanian professors had already warned us that their former students had lost as much as 6 pounds while sitting for the IMO alone. Our case, though not the same, was quite similar. I had to rush to the bathroom on no less than 13 up and not fall asleep. An hour into the paper, I realized more I could do and the snores of Pamela, the Puerto Rican affirmed that belief. The test was finally over and we confident of securing enough to propel our national rank by results were announced and I scored 8 points, 2nd behind got an honorable mention for the country). Our total score which was a dramatic improvement over last year's 11. in the low 70's. Only a handful of countries scored below Luxembourg, Nigeria, Mozambique and others. China competition with a whopping 212 points!



occasions, to freshen there was nothing girl sitting behind me, handed in our papers, a few numbers. The Zaeem's 10 (Zaeem accumulated to 32, Pakistan was ranked us, like Saudi Arabia, (who else?) won the

We were still not deterred. We knew our aim was not to silver or even a bronze (though a medal would have been announce that Pakistan was on the scene. And we did just the improvement was something he wasn't expecting for this rate, Pakistan would be winning bronze medals in 2 or and ranking among the top 25 countries within 20 years. Not bad for a start.

capture a gold or good), but to simply that. ADR told us that another 5 years and at 3 years, silvers in 10

There was never a moment's rest at the IMO. Every second carried its own gusto. While trying out Slovenia's insipid delicacies, or exploring Ljubljana's posh malls, challenging the Turks to another game of Contract Bridge, or winning a nail-biting soccer game against the Israelis on penalties, hiking the steep rock-strewn hills in moccasins, or touring a 20 Km long underground cave (with sub-zero temperatures), hitting on that exceptionally cute Venezuelan girl, or trying out Slovenia's renowned ice-cream, sitting in the city hall listening to travelling bards and musicians, or just strutting around the city, in white shalwaar-kameez and green waist-coat, making a new friend every two minutes; there was not an instant where we looked back and regretted our decisions to skip our mock examinations, forego weeks and weeks of high school, spend thousands of rupees on the regular airfare to Lahore, barely survive on the gruel served daily at Amir Hotel, and painstakingly bear the acute heat of Lahore.

My only regret is that I cannot do it again.

(The author, Syed Hasan Riaz, is currently a student of The University of Waterloo, Ontario, Canada, enrolled in a Mathematics and Business Double Degree. He qualified for the NMTC through the 2nd NSTC test held in January 2005 and sat for the International Mathematical Olympiad, in Ljubljana, Slovenia, in July 2006.)

NAFU: a dream...

NSTCians

Individuals make institutions, institutions make nations. History provides well-documented evidence of institutions which significantly changed the destiny of countries. The universities at Cordoba made the Moors moral masters of Europe for 800 years. Oxford and Cambridge laid the ground for British dominance of world science and commerce. Aligarh alumni created Pakistan, while graduates of the IITs and IIMs introduced the world to Shining India. All institutions started with a dream: a dream which made the difference.

We, too, during our training at the National Mathematics Talent Competition (NMTC) in GCU, Lahore, dreamt up a wild idea: why not establish an institution, an elite educational institution, which would change the destiny of Pakistan forever. As I said, this is a truly wild idea for eighteen year olds like us, who haven't even stepped inside college yet. But then, the NMTC is all about wild people like us who find aesthetic pleasure in something as boring as mathematics, so it's no wonder that the idea soon found acceptance amongst all the NMTC participants. We dared to dream, possibly taking the first step towards the fulfilment of NAFU.

So what exactly is NAFU? Well it's just a code word for our planned institution, which stands for: NSTC Alumni and Friends University. We don't really mean to impress you by our naming conventions, but then, what's in a name? The name can be selected later on, and that's really not the problem. What matters is what NAFU would be. What will it stand for? Will it be just another "university" as are popping up in every street and bungalow of our wretched country, or will it be a truly grand institution, like Oxford and Cambridge, like Aligarh, and as I laughingly pointed out, like Yale.

Friends, Patricians, schoolmates, please, just let go of the world around you for a few moments. Forget the fact that Pakistan is a poor country, debt-ridden, with one of the worst living standards in the world. Forget everything, and dream with us, dream about NAFU...

...it has to be the best of the best. We will take only the best students, NSTC Alumni will teach there. Ideally our teachers would be Ivy League graduates, no, Stanford and MIT graduates, may be from Pakistan, oh whatever. We would round up Pakistani teachers from all the best universities of the world, and then bring them to NAFU. And then will the fun begin...

...but it will be expensive. Oh, it doesn't, matter; the corporate sector will fund us. Hopefully we will have enough contacts in the right places by then, right? And by the way, we would have to offer a lot of financial aid to our students, and we will also have a need-blind admission policy, so that the cost of education does not deter the best and the brightest...

...we will impart education in all the major disciplines. From the theoretical sciences (I will teach Mathematics), to the arts, to particular skills like engineering, medicine, architecture, etc etc. We would have a grand institution, a powerhouse of all the knowledge man ever accumulated. It will take time, it will take effort, and most of all, *it would take a lot of courage*. But it will be done. We *will* do it. InshaAllah...

...but what will be the location? Where and when will it be established? Where, we know not. When, we can only hope. Perhaps after twenty years time, perhaps even more. Of course it will have to be a humble beginning: Aligarh started from a small school which was not even located at Aligarh; but see what it went on to become. NAFU will be the same. It will be the engine which will fuel Pakistan's growth; it will be the driving force which will make Pakistan, as Jinnah dreamt, one of the greatest nations of the world...

Crash back to reality! Exams coming up, and then we will have to adapt to a new phase in our lives (i.e. college). But that doesn't mean that we stop thinking about the future of our country. Pakistan, I repeat, is a wretched place, and only education can propel a change for the better. It is our responsibility, as honorable

citizens of Pakistan, to look into it, to do something about it. And we will have to start with the first basic step: we will have to dream.

Dare to dream!

(This article has appeared in several publications nationwide, most notably in the yearbooks of some prestigious schools. After all, it is not only my dream, but a dream shared by several other young students from all over Pakistan who took part in the NMTC. You can be a part of us (unofficially) by joining our Orkut community. Till then, keep dreaming!)

(Syed Salah Ahmed, Mustafa Abbas Petiwala, Awais Tariq, Muhammad Sameed, Zaeem Hussain, Omair Aziz Suria, Mohsin Ali Khan, Muhammad Fahd Waseem, Asad Liaqat, Saif Sultan Alums of NMTC 3)

Numbers, Nerds and the Edge of Sanity

Mehreen Khalil Mukaddam and Maria Qazi –SY

A certain and sudden influx of mathematical brain power and numerical potency amongst the students found seven Grammarian second years making their way to the first training camp of the 3rd NMTC, after qualifying a bizarrely Greek screening test. The training camp held in Lahore annually is a stepping stone in preparing students and selecting the best brains for the International Mathematics Olympiad.

This year special arrangements had been made for a week's strenuous training in high level mathematics (or so it seemed), with classes lasting from 8 in the morning till 8 in the night, wringing the minds of every student, and leaving them craving for sanity during the sparse, but tremendously welcome, breaks. The SMS (School of Mathematical Sciences), which turned out to be a disappointment for a building, was to be the torture cell where an experienced yet good humoured and entertaining Slovenian professor, Mr. Dan Schwartz, unleashed his numerical wizardry on 40 students (who were effectively whittled down to 30 in just three days), most of whom were left with nothing but question marks floating around their heads by the end of each day.

From all over Pakistan, an assortment of nerds, misfits, math whizzes and even bigger nerds came together for a common cause; to find a place, even the teeny tiniest place, in the next round. However, towards the end of a week's mental scouring, most of these contenders had given up and remained solely for the sake of the appealing certificates that awaited them at the end of the training. Well, all expect for Hania Faridi, whose unwavering determination and belief in the sanctity of math and the solvability of every question kept taking her to the library for reference books, and Mustafa Petiwala and Bashaar Farouqui, both of whom some how managed to find access to the past papers online and were alone successful in deciphering the math which, much to our chagrin, was mostly done in the language of a's, b's and x's.

In the end, it is impossible to overlook the numerous junk food trips that were made to the close-by market during the lunch breaks, the games of bluff played with upto twelve players and two decks combined, Maria Qazi and Mashaal Sohail's abrupt obsession with writing puzzles on the white board, more card games in the Professor's office and getting to meet introverts who perused math books as bedtime reading. Despite the fact that many of us failed to comprehend the multitude of mathematical theories that were heaped upon us, the conclusion of our trip to Lahore was a happy one, culminating in a certificate ceremony at the charming Government College University of Lahore. The magnetism of its beautifully manicured, breathtaking gardens, Victorian red brick buildings, stately halls and air of credence was enough to make us leave the bus twice to look at the place for one last time.

(The authors were the participants of the 3rd National Mathematics Talent Contest)



NMTC-1 participants with Minister of Education Punjab and Dr A D Raza Choudary



NMTC-3 participants with their certificates

NPTC: National Physics Talent Contest

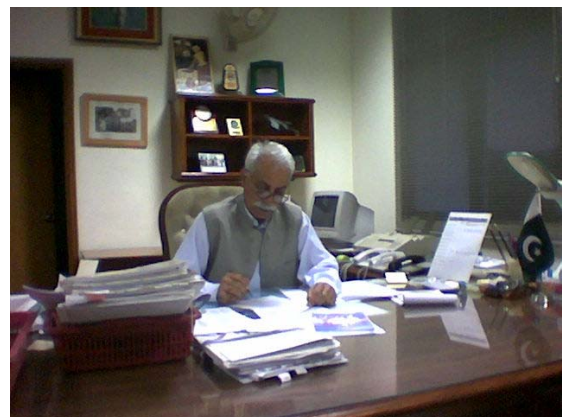
Pakistan Institute of Engineering and Applied Sciences (PIEAS), Nilore, Islamabad, Home Institute →



Ghulam Ishaq Khan Institute of Engineering Science and Technology (GIK-I), Topi, Ex-Home Institute ←



Dr Abdullah Sadiq, SI Chair STEM Careers Project and Chief Coordinator NPTC →





Dr Ibrahim Qazi, Asstt. Professor, GIK-I, Ex-Coordinator →

Dr Shahid Qamar, PIEAS, Coordinator ←



Achievements:

In 32nd IPhO, 2001, Turkey, the **Honorable Mention** and **special prize** for the countries participating for the first time was won by *Yaser Raza Khan*. *Yaser has completed his BS in Engineering Sciences from the University of Toronto and now pursuing his PhD at the same university*. In 33rd IPhO, 2002, Bali, Indonesia. Pakistan's result was best ever where our team won **2 Bronze Medals** and Three **Honorable Mentions**. Abid Hasan Naqvi won a Bronze Medal. He did his BE from NUST and now doing PhD in Physics at Texas A & M. Wasil Intisar Mohr won a Bronze Medal, he did his BE from Middlebury University and now working as Actuaries in UK. Umair Safwan Malik won an Honorable Mention. He did his BE from MIT. Osama K Ahmed won an Honorable Mention and did his BE from NUST and now working in Erickson. Murad Tariq won an Honorable Mention and did his BS from FAST and now working in Microsoft. In 34th IPhO, 2003, Taipei, Taiwan, Pakistan won a **Bronze Medal** and an **Honorable Mention**. Umair Sadiq won a Bronze Medal. He did his BE from GIK-I and now working in ICI Pakistan. Wajahat Faheem Khan won an Honorable Mention and is doing BE from MIT. Umair Sadiq was awarded with the Special Prize for Best Participation among the countries participating for the last 3 years. In 35th IPhO, 2004, Pohang, Korea Pakistan won three **Honorable Mentions**. Ameer Ali Abdullah, doing BS at LUMS, Foaad Tahir doing BE at GIK-I and Sabeen Faridi who is doing BE at Caltech were the winners. In 36th IPhO, 2005, Salamanca, Spain Pakistan won two **Honorable Mentions**. Nabeel Rehman Shami who is doing BE at NUS, Singapore and Dawood Tariq who is doing BS at LUMS were the winners. In 37th IPhO 2006, Singapore, Pakistan relied on only one **Honorable Mention** which was won by Fahad Mahmood, who is currently studying at Stanford. In 38th IPhO 2007, Isfahan, Iran, Pakistan won two **Honorable Mentions**. Muhammad Zeeshan Javed, studying in Princeton and Muhammad Sulaiman, studying in UET Lahore, were among the winners.

NPTC – An Invigorating Experience

Rahim Gowani

NSTC, an unforgettable experience of my life, is, in my view, a ground to check students' IQ level and their propensities in their respective fields of interest. I first heard about NSTC from my college teacher. Just to check how good I was in physics, which was, at that time, my favourite subject, I took the nation-wide screening test along with many of my friends and college-fellows. After taking the test, no body knew who would be selected because it was a tough and unique kind of test.



NPTC-1 Participants with Dr Inam Ur Rehman and Dr Abdullah Sadiq



NPTC-2 Participants Dr Abdullah Sadiq



NPTC-3 Participants with their Mentors at PIEAS



NPTC-4 Participants with Ms Zubaida Jalal, Dr Ishfaq Ahmed and Dr Abdullah Sadiq



NPTC-5 Participants with Dr Samar Mubarik Mand and Dr Abdullah Sadiq



NPTC-6 Participants with Mr. Parvez Butt, then Chairman PAEC and Dr Abdullah Sadiq

I had almost forgotten about this test when one day a friend of mine met me in college and told me that I had been selected for the 1st round of the competition. I was very glad at that moment and started preparing myself for the upcoming event.



NPTC-10 Participants with Dr Inam Ur Rehman and Dr Abdullah Sadiq

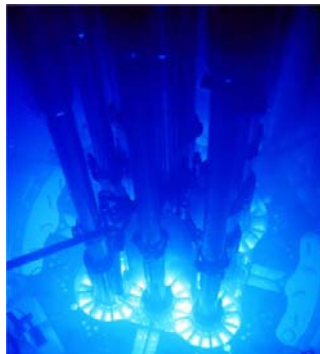


NPTC-12 Participants with Dr S. Sohail H Naqvi, ED HEC and Dr Abdullah Sadiq

The first camp of NPTC started after my exams at GIKI. At the camp, I met many students from all over the country. It was a great experience to share ideas with students of different cities. A competition like this not only prepares you for the best but also gives you an experience to live in a learning environment.

The one week camp had us pushed to our intellectual limits with a very busy schedule. In the morning, at around 6:30 am, we had to get up and have our breakfast. From 8:00 am to 9:00 am, we had to take the daily test, focusing on new topics every day. After that came the discussion session, where we discussed different Physics concepts! After tea-time, visits of different departments of GIKI were conducted. The distances we had to cover roaming around the institute every day played havoc with my feet, causing them to swell, because I was not used to walking so much daily. After lunch, we were, thankfully, given some time to rest. The evening brought with it the experimental session, in which each group consisting of two people had to perform an experiment with a viva. In the night, after prayers, we used to get the chance to meet eminent professors in the lecture hall. They presented their lectures on interesting physics concepts like string theory, lasers etc, and also made efforts to fulfil our different queries regarding physics.

The most amazing part of the camp was the Visit of Research Nuclear Reactors at PINSTECH (Pakistan Institute of Nuclear Sciences and Technology) and Research facilities at PIEAS; the visit memorable. This all contributed to the experience. The last day was very on that day were to decide who would be couldn't make it, but that entire test to attempt. I had never solved such Matric or F.Sc. All in all, the NPTC camp will cherish forever.



was the Visit of Research Nuclear of Nuclear Sciences and Technology) to Tarbela Dam was also very enhancement of such a great important because the results of the test going to the next camp. Unfortunately, I session, in spite of being tough, was fun practical problems related to physics in left me with lots of memories which I

I hope that the upcoming students will learn from our experiences and will add more vivacity to their own experiences.

(The author, Rahim Zulfiqar Ali, is currently studying at NED University of Engineering and Technology, Karachi, Pakistan, enrolled in the Bio-engineering department. He qualified for the screening test of NPTC-10 held in January 2005 and attended the camp in July 2005 at GIKI.)

How you can be a Part of this?

Farihah Malik

Now that you've read about other people's experiences of the camps of NSTC and the Olympiads, here's how you can be a part of NSTC.

WHO can apply in NSTC-5 who are?

- 1) 1st year F. Sc. /A-level students, of age not more than 20 (on July 2009) years. Please note that those students who are currently studying in F. Sc. Part II or equivalent are not eligible to apply.
- 2) Are not enrolled in any university or an institute of higher learning by July 2009.
- 3) Have an aggregate of 75% or more in Matric/O-level.
- 4) Have 90% or more marks in at least one of the four NSTC subjects; Biology, Chemistry, Mathematics and Physics.
- 5) Colleges can nominate as many students as they desire.
- 6) If a college does not have enough students who fulfill above mentioned requirements they can nominate five of their top students.
- 7) Those students of F. Sc. or A Level who do have 75% aggregate marks but do not have 90 % in any of the four NSTC subjects can also apply but fall in category b as described below.
- 8) Exceptionally bright students of Matric/O level or those even younger are also eligible to apply, however their college nomination is required and they also fall in category b.

Note: All students who fulfill the first four requirements fall in category a. Students, who studied Computer Science in Matric/O-level, may also apply. They need to learn some basic biology to be able to attempt the biology questions in the compulsory Part I of the Screening Test.

Here I'd like to emphasize the last point. If Matric/ O level students are selected for the training camps [and subsequently for participation in the Olympiads] they can also be a part of the NSTC in the subsequent year. This gives them the opportunity to participate in two Olympiads. Going through the training process twice increases their chances of winning the next time around.

HOW to apply?

Registration: Fill in the forms available with your school/college and follow the instructions on them. Or, fill the registration form online at: <http://win.nstc.edu.pk/registration/index.asp>

With the application you'll need to send:

- Attested Marks Sheet of Matric of O Levels
- If Date of Birth is not mentioned on the Matric or O Levels Marks Sheet then proof of your age (this could be a copy of your passport, birth certificate or B-form).
- 3 Passport sized photographs as mentioned on the form.
- Attested Photocopies of Academic Distinctions (if any).
- Photocopy of NIC of Parent/Guardian
- Postal order of a certain value as per the category mentioned below

Student Categories:

a) Students in category (a) should send a Postal Order of Rs.100/- along with these documents. F. Sc. /Matric Students in category

(b) should send a Postal Order of Rs.250/- and A level or O level students of category (b) should send a postal order of Rs.500/- (for A-level students or O Levels) as an application processing fee. Please send a Postal Order in favor of, The Chair, STEM Careers Project, at the following address.

Note: No other mode of payment like bank drafts, cheques and cash is accepted

STEM Careers Project Office
HEC Campus, H-9, Islamabad
Phone: +92 51 9040705,

Deadline for submission of forms is 30th of November, 2007.

Screening test:

The screening test consists of two sections:

- 1) A compulsory section of 20 MCQs encompassing all four subjects, i.e. Biology, Chemistry, Mathematics and Physics.
- 2) Section II, consisting of 50 MCQs and 1 or more subjective questions of 30 marks. The student will attempt only the subject which he/she has applied for.

Note: The test covers the syllabi of Matric/ O Levels and F. Sc. Part 1 and A Levels part 1 or AS Levels.

The screening test is conducted in January and test centers are made in the following 8 cities:

1. Islamabad/Rawalpindi
2. Karachi
3. Lahore
4. Peshawar
5. Quetta
6. Faisalabad
7. Hyderabad
8. Multan

Arrangements may be made to hold the test in other cities if more than 100 students from that city/region apply. The result of the screening test is announced on the NSTC website.

Camps:

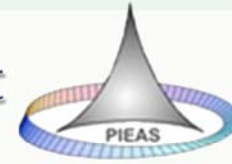
After the screening test, the selected students are invited to attend the camps of their respective subjects. These first camps are held between June and September

Camp	Location
Biology	NIBGE, Faisalabad
Chemistry	HEJ, Karachi university, Karachi
Mathematics	SMS, Lahore
Physics	PIEAS, Islamabad

Students are short listed after each camp. These subsequent training camps are usually held in December, January, March, April and after the final exams of F. Sc. and Levels till the participation in the International Olympiad. A team of 4, 4, 5 & 6 students is selected to represent Pakistan in Biology, Chemistry, Physics and Mathematics respectively in the International Olympiads. A tentative schedule of the NSTC is given below:



STEM Careers Project



TENTATIVE SCHEDULE

5th NATIONAL SCIENCE TALENT CONTEST (NSTC-5), 2007



Online Registration

29th September, 2007
(Saturday)

Dispatch of the introductory package to institutions and colleges

1st October, 2007
(Monday)



Advertisement in Newspapers and Media

7th October, 2007
Sunday's Newspaper



Deadline of receiving Nomination forms

30th November 2007
(Friday)



Screening Test

13th January 2008
(Sunday)



Training Camps

July 2008 - June 2009



Participation in International Science Olympiads

July 2009



Certificate Awarding Ceremony

July/August 2009

Note:

About 10-15 top students in each discipline from the July-August 2008 camps and who are willing to participate in the Olympiads, would be invited for subsequent Training Camps

STEM Careers Project is a joint venture of Higher Education Commission and Pakistan Institute of Engineering and Applied Sciences for grooming youth of nation for careers in Science, Technology, Engineering & Mathematics

Good Luck!

(The author, Fariyah Malik was a participant of NBTC 2)