Brochure

Mathematical Olympiads

2023 - 2024

HOMI BHABHA CENTRE FOR SCIENCE EDUCATION
TATA INSTITUTE OF FUNDAMENTAL RESEARCH

&

National Board for Higher Mathematics

NATIONAL BOARD FOR HIGHER MATHEMATICS
DEPARTMENT OF ATOMIC ENERGY
GOVERNMENT OF INDIA

**Mathematical Olympiad Programme in India
leading to participation in the following
International Olympiads**

APMO2024   IMO2024   EGMO2025

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MATHEMATICAL OLYMPIAD PROGRAMME IN INDIA AND RELATED ACTIVITIES

The International Olympiad movement is aimed at bringing the most talented secondary and higher secondary students of the world together in a friendly competition of the highest level. The Olympiads do not lead directly to any career benefits; rather, they provide a stimulus to begin a career in science or mathematics, to undertake a lifelong journey into the realms of exciting intellectual challenges. The Olympiads are not merely competitions, they are the meeting places of the brightest young minds of the world, and many friendships forged at the Olympiads form the seeds of scientific collaboration later in life. Much like the Olympics in sports, the Olympiads are a celebration of the very best in school level science and mathematics. The Olympiad programmes globally have aimed at not just the international events, but also as national channels to enrich school educational curriculum. Even beyond the scope of the examinations, Olympiad problems provide intellectual stimulus and uncommon opportunities for teaching and learning of Mathematics and Science.

The principal aim of the Mathematical Olympiad and other Math competitions is to stimulate love and enthusiasm for mathematics. It is a healthy competitive activity that facilitates the learning of mathematical concepts, and the teaching of major strategies for problem solving. More than everything else, the purpose is to foster mathematical creativity and ingenuity, and the thrill of meeting challenges. Although a good performance in these competitions inspire a student to follow mathematics as a career, they do not substitute for regular curricula and do not play a detrimental role in the careers of those who are not successful in the maths Olympiads.

The Mathematical Olympiad Programme (MOP) in India is organised by the Homi Bhabha Centre for Science Education (HBCSE) on behalf of the National Board for Higher Mathematics (NBHM) of the Department of Atomic Energy (DAE), Government of India.

Apart from the International Mathematical Olympiad (IMO), in which India has been participating since 1989, it has also started participating in two more international Olympiad events: the European Girls' Mathematical Olympiad (EGMO) and Asian Pacific Mathematics Olympiad (APMO) since 2015. The process for selection of students for participation in the

events have been merged, taking into account the requirements of the individual tests.

Team Selection and Training Process :

For the purpose of training and selection of students for the Olympiad contest several regions all over the country have been designated and each assigned a Regional Coordinator. Additionally, two groups of schools: Jawahar Navodaya Vidyalayas (JNV) and Kendriya Vidyalayas (KV) are also treated as separate regions and have a 'Regional Coordinator' each.

The MOP in India consists of six stages as outlined below.

The stages are described below and will also apply to participation in the EGMO and APMO as indicated.

Stage 1: <u>Indian Olympiad Qualifier in Mathematics (IOQM):</u>
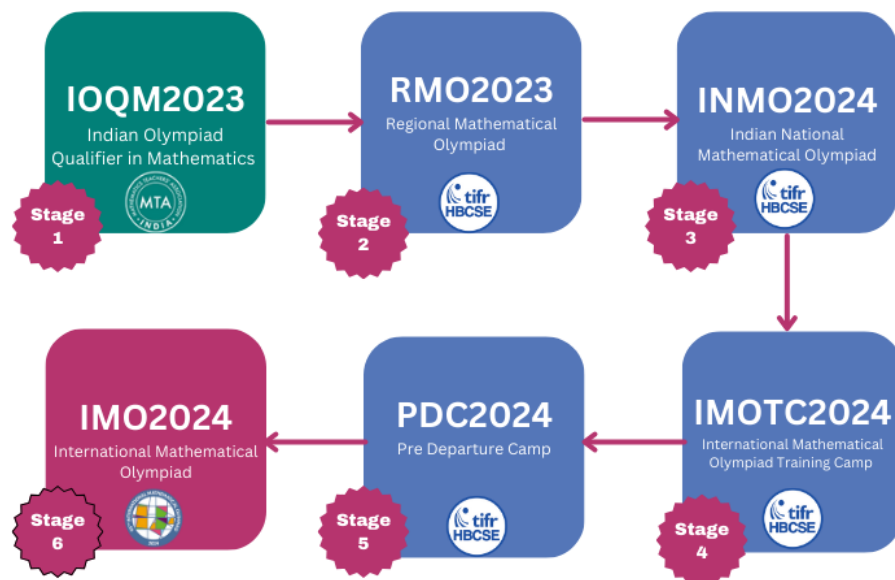
The Indian Olympiad Qualifier in Mathematics (IOQM) is a three hour examination with 30 questions. The answer to each question is an integer between 00 and 99 and will need to be marked on a machine readable OMR response sheet. The IOQM question paper will be available in English and Hindi. Students who require the Hindi version will need to indicate their choice at the time of registration for IOQM.

<u>Eligibility criteria for Indian Olympiad Qualifier in Mathematics (IOQM), 2023</u>

1. Students born between August 1, 2004 and January 1, 2011, and studying in Class 8, 9, 10, 11 or 12, are eligible to write IOQM 2023. Please note that NO student born after January 1, 2011 will be allowed to write IOQM 2023.

2. The students must be eligible to hold an Indian passport. Provisionally, students with OCI cards are eligible to write the IOQM 2023 subject to conditions as explained below:

As per the orders of the Madras High Court, students with OCI status will not be eligible for selection to the Indian team in the International Mathematical Olympiad (IMO), European Girls' Mathematical Olympiad (EGMO), Asian Pacific Mathematics Olympiad (APMO). However, such students are provisionally eligible for selection at ALL prior stages, up to and including the International Mathematical Olympiad Training Camp (IMOTC) and European Girls' Mathematical Olympiad Training Camp (EGMOTC) provided they fulfil all other criteria. They are also provisionally eligible to write the selection tests at the IMOTC and EGMOTC. This policy is subject to revision without prior notice depending on any further orders issued by the courts, or by a competent Government authority.

3. The student must be residing and studying in India since 30 October 2021 or earlier OR must be studying in an Indian school system since 30 October 2021 or earlier. If the student is an Indian citizen or an OCI residing abroad and is studying in an Indian school system then the student will have to come to India to write IOQM 2023 and the examinations of the subsequent stages (i.e Regional Mathematical Olympiad (RMO) 2023 and Indian National Mathematical Olympiad (INMO) 2024) in case s/he qualifies for these examinations. The student will be regarded as one who

has enrolled from the Delhi-NCR and the same selection criteria for RMO 2023 and INMO 2024 will apply to him/her as for any student residing and studying in India who has enrolled from Delhi-NCR. The student will have to bear the expenses for the onward journey to India and the return journey from India.

4. The student must not have qualified (or scheduled to appear) class 12 board examination earlier than 30 October, 2023.

5. The student must not have commenced (or planning to commence) studies in a university or equivalent institution by 1 June, 2024.

6. The INMO 2023 Awardees are eligible to write INMO 2024 directly WITHOUT qualifying through IOQM 2023 and RMO 2023 provided they fulfil the age criteria mentioned in point no.1, they haven't commenced (or planning to commence by June 1, 2024) studies in a university or equivalent institution and they fulfil the eligibility criteria of IMO 2024 and EGMO 2025. Please note that the OCI students are not eligible to represent India in IMO 2024 and EGMO 2025.

- For the eligibility criteria for IMO 2024 please refer to https://imof.co/students-alumni/how-can-i-compete-at-an-imo/.
- Eligibility criteria for EGMO 2025: A country's contestants should normally be citizens or residents of that country, and should be selected through that country's national Mathematical Olympiad or equivalent selection programme. Contestants must have been born less than twenty years before 1 April in the year of participation at the EGMO. Contestants must have been normally enrolled in full-time primary or secondary education on or after 1 December in the year prior to the EGMO, or, in the case of home-schooled students, must not have received a high-school diploma (or equivalent), and must be working toward such a credential on 1 December.

7. It will be the responsibility of the student to ensure that the above eligibility criteria are satisfied. In case it is found at any later stage of the programme that a student does not meet the eligibility criteria, he or she may be disqualified from the programme.

Criteria for qualification from IOQM 2023 to RMO 2023

1. A student has to score at least 10% of the total marks of the IOQM 2023 paper in order to be eligible to appear for RMO 2023 but this is NOT the sole qualifying criterion.

2. Any student who has scored at least 10% of the total marks of the IOQM 2023 paper and enrolled for IOQM 2023 as a student of one of the classes 8,9,10,11 will be classified as a Category A student.

3. Any student who has scored at least 10% of the total marks of the IOQM 2023 paper and enrolled for IOQM 2023 as a student of class 12 will be classified as a Category B student.

4. The list of students who qualify for the RMO 2023 will be prepared according to the following rule:
(a)From each region
 (list of regions: https://www.mtai.org.in/rmo-region-codes/)

i. the top 200 students from Category A will qualify for RMO 2023 along with those tied in the 200th position;

ii. the top 40 students from Category B will qualify for RMO 2023 along with those tied in the 40th position;

iii. 5 additional girl students from Category A irrespective of the number of girl students qualifying in the top 200 students from Category A will qualify for RMO 2023 under Girls' quota.

(b) There is no separate Girls' quota for Category B. A girl student of Category B can qualify for RMO 2023 from IOQM 2023 if and only if she is selected among the top 40 students in Category B as described in the previous section (point 4(a)ii. above).

In the case of all regions other than KV and JNV, the region to which a student belongs will be determined by the postal address of the school in which the student is studying. Any false information provided at the time of registration in this regard will be treated extremely seriously and will lead to immediate disqualification of the student from all subsequent stages.

Students studying in non-KV and non-JNV schools affiliated to CBSE will belong to their respective geographical regions.

The IOQM 2023 will be held on Sunday, September 03, 2023, between 10:00 am and 1:00 pm.

The IOQM exam will be conducted by the Mathematics Teachers' Association (India) (MTA(I): http://www.mtai.org.in)

PLEASE DO NOT CONTACT HBCSE IN CONNECTION WITH ANY QUERIES CONCERNING THE IOQM 2023 EXAMINATION. ALL QUERIES MAY BE SENT TO THE CHIEF EXAMINATION COORDINATOR, MTA(I), BY EMAIL AT mtaprmo@gmail.com .

The details of the process of registration for IOQM are published on the MTA(I) (https://www.mtai.org.in/) and HBCSE (https://olympiads.hbcse.tifr.res.in/mathematical-olympiad-2023-2024/) websites.

Stage 2: <u>Regional Mathematical Olympiad (RMO):</u>

The RMO is a three hour subjective type written test with six problems.

<u>2023 Criteria for qualification from RMO 2023 to INMO 2024</u>

1. A RMO 2023 contestant from class 8, 9, 10, 11 will be classified as a Category A student.
2. A RMO 2023 contestant from class 12 will be classified as a Category B student.
3. From each region

   (a) the top 30 students from Category A will qualify for INMO 2024. The ties in the 30th position will be broken by the IOQM 2023 scores.

   (b) the top 6 students from Category B will qualify for INMO 2024. The ties in the 6th position will be broken by the IOQM 2023 scores.

   (c) 5 additional girl students from Category A irrespective of the number of girl students qualifying in the top 30 students from Category A will qualify for INMO 2024 under Girls' quota.

4. There is no separate Girls' quota for Category B. A girl student of Category B can qualify for INMO 2024 from RMO 2023 if and only if she is selected among the top 6 students in Category B as described in point 3.(b) above.

The RMO will be held in all the regions on Sunday, 29th October 2023 between 1:00 p.m. and 4:00 p.m. If the RMO 2023 cannot be held due to unavoidable extraneous circumstances, an alternative date may be announced for specific regions/centres as an exception.

The results of RMO for all the regions are to be declared centrally by HBCSE on or before 15th December, 2023.

Stage 3: <u>Indian National Mathematical Olympiad (INMO)</u>

The INMO will be held on the **third Sunday of January (January 21, 2024) from 12:00 noon to 4:30 p.m.** This contest is a four and a half hour written test.

(I) The students who are selected in RMO 2023 are eligible to write INMO 2024.
(II) The INMO 2023 AWARDEES are eligible to appear for the INMO 2024 provided they fulfil other eligibility criteria.

On the basis of the INMO, the top 48 students from Classes 8, 9, 10, 11 and the top 12 students from Class 12 in merit from all over the country will be chosen as INMO awardees. The ties in the 48th position in the Class 8, 9, 10, 11 category and in the 12th position in the Class 12 category will be broken by applying an appropriate tie-breaking criteria which will be announced on the HBCSE Mathematical Olympiad website prior to INMO 2024. These students will be eligible to appear for INMO 2025 directly without qualifying through IOQM 2024 and RMO 2024 subject to their satisfying other eligibility conditions.

Apart from the INMO awardees from Classes 8 to 11 as specified above, up to 5 girl students from the INMO merit list will be selected as INMO awardees under girls' quota. They are considered on par with the other INMO awardees for all purposes of eligibility. There will be no separate girls' quota for Class 12 students.

The segregation to junior and senior batches for IMOTC 2024 will be done after the merit list is finalised. The senior batch will consist of the INMO 2023 Awardees in the list of selected students for IMOTC 2024 from INMO 2024. The remaining students will constitute the junior batch.

All INMO AWARDEEs, the selected girl students as above and all the students designated as senior students of IMOTC 2024 will be eligible to write APMO 2024. The APMO 2024 exam will be held in the respective regions.

The INMO 2024 results will be declared in the last week of February 2024 or in the first week of March 2024.

Pattern at a glance:

#	Name	Number of Questions		Max Marks	Time	Nature/Type
1	IOQM Date: September 3, 2023 Time: 10:00 to 13:00 hours (IST)	<table><tr><td>No. of Qns</td><td>Marks for each Qn.</td></tr><tr><td>10</td><td>2</td></tr><tr><td>10</td><td>3</td></tr><tr><td>10</td><td>5</td></tr><tr><td>Total 30 Qns</td><td>For 100 Marks</td></tr></table>		100	3 Hrs	➢ The answer to each question is an integer in the range 00-99. ➢ OMR-based exam. ➢ Offline(Pen & Paper based) ➢ No negative marking. ➢ Objective
2	RMO Date: October 29, 2023; Time: 13:00 to 16:00 hrs	6 (Each Question is of 17 marks)		102	3 Hrs	➢ Each question requires writing detailed proof. ➢ Offline (Pen & Paper based) ➢ Descriptive
3	INMO Date: January 21, 2024; Time: 12:00 to 16:30 Hrs.	6 (Each Question is of 17 marks)		102	4.5 Hrs	➢ Each question requires writing detailed proof. ➢ Offline (Pen & Paper based) ➢ Descriptive

Stage 4 a): <u>International Mathematical Olympiad Training Camp (IMOTC)</u>

The INMO AWARDEEs are invited to a month-long training camp IMOTC in April-May. The venue of the training camp will be HBCSE Mumbai or any other institute in India. It will be announced after the INMO 2024 results are published.

The junior students will receive the INMO Awardee certificate and a prize in the form of books. The senior students will receive a prize in the form of books. All students jr and sr will receive participation certificate.

On the basis of a <u>number</u> of selection tests during the Camp, a team of the best six students is selected from the combined pool of junior and senior batch participants as the IMO 2024 Team.

Stage 4 b): <u>European Girls' Mathematical Olympiad Training Camp (EGMOTC)</u>

The girl students who are eligible to compete for selection to the Indian Team for EGMO 2025 will be invited to attend EGMOTC in December 2024 either at HBCSE or at any other venue. The exact date and the venue will be confirmed by the end of September 2024. A team of up to four girl students will be selected for participation in EGMO 2025 on the basis of their performance in the selection tests held during the camp.

As per the orders of the Madras High Court, students with OCI status will not be eligible for selection to the Indian team in the International Mathematical Olympiad. However, such students are provisionally eligible for selection at ALL prior stages, up to and including the IMOTC provided they fulfil all other criteria. They are also provisionally eligible to write the selection tests at the IMOTC. This policy is subject to revision without prior notice depending on any further orders issued by the courts, or by a competent Government authority.

Stage 5: <u>Pre-Departure Training Camps</u>:

A. The selected team of six students goes through another final round of training and orientation for about ten days prior to departure for IMO.

B. A Pre-departure camp will also be arranged for girl students selected for participation in EGMO 2024, at a suitable time.

Policy regarding participation in IMOTC/OCSC

The following procedure will be applied for selection of students for IMOTC.

In a given year, a student can participate in the orientation/ training/selection of only one subject including the IMOTC and the Orientation-Cum-Selection-Camp (OCSC) for the five science subjects, according to a preference order decided by the student herself/himself. A student who qualifies in more than one subject (on the basis of her/his performance in INMO or the Indian National Olympiads (INO) in the five science subjects, will be invited to the IMOTC/OCSC that is ranked highest in her/his preference list.

The procedure is as follows:

Before INMO/INO: 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 (and therefore competing for selection in the international team). This will not affect in any way the evaluation of her/his INMO/INO performance in any subject.

After INMO/INO: A target number of students will be invited to the IMOTC/OCSC camp of each subject. The students in each subject will be assigned a rank according to her/his performance in the respective INMO/INO. If a student obtains qualifying marks in INMO/INO in multiple subjects, she/he will be included only in the IMOTC/OCSC for the subject which figures highest in her/his preference list among the subjects in which she/he has obtained qualifying marks. Her/his name will not be considered for

11

IMOTC/OCSC in the other subjects, and the next students in those subjects will be considered, till the target number of students is reached in each subject.

Irrespective of selection or participation in IMOTC/OCSC, the student will receive a certificate in every subject in which her/his score is equal to or higher than the score of the last selected student in that subject.

Some Details Concerning the International Olympiads:

Stage 6 A: <u>International Mathematical Olympiad (IMO):</u>

The six member team selected at the end of IMOTC accompanied by a leader, a deputy leader and observers represent the country at the IMO, held in July each year in a different member country of the IMO. The IMO contest consists of two written tests held on two consecutive days. On each day of the contest the test consists of three problems and lasts for four and half hours. India has been participating in the IMO since 1989. Students of the Indian Team who receive gold, silver and bronze medals at the IMO receive a cash prize of Rs. 5000/-, Rs. 4000/- and Rs. 3000/- respectively .

Students aiming to go through the Mathematical Olympiad programme leading to international participation (IMO) should note that IOQM is the first essential step for the programme.

Stage 6 B: <u>European Girls Mathematical Olympiad (EGMO):</u>

A team of at most four girl students selected at the end of EGMOTC accompanied by a leader, a deputy leader and an observer represent the country at the EGMO, held in April each year in a different European country. The EGMO contest consists of two written tests held on two consecutive days. On each day of the contest the test consists of three problems and lasts for four and half hours. India has been participating in the EGMO since 2015.

Students aiming to go through the Mathematical Olympiad programme leading to participation in EGMO should note that IOQM is the first essential step for the programme.

<u>Asian Pacific Mathematics Olympiad (APMO):</u>

The APMO is a contest specifically held for students in Asian countries and the countries in the rim of the Pacific Ocean. There is a senior coordinating country which coordinates this examination. The advantage of this contest

is that one can participate in it being in her/his country. India has started participating in it from 2015. The contest consists of solving 5 problems in four hours.

The students can take their examination in their respective regions. The regional coordinator will conduct the test in her/his region.

Syllabus for Mathematical Olympiad:

Any aspirant for the International Mathematical Olympiads such as IMO, EGMO, APMO and the domestic selection rounds (i.e RMO, INMO)

1. must be familiar with all the topics covered in NCERT Mathematics books of Class VIII, IX and X;
2. must note that in addition to the topics covered in point no. 1 above the following topics are to be given importance while preparing for the olympiad examinations;
3. must know that the major areas from which problems are posed are algebra, combinatorics, geometry and number theory and that the difficulty level increases from RMO to INMO to IMO.

Algebra
Inequalities, Progressions (A.P, G.P, H.P), Theory of indices, System of linear equations, Theory of equations, Binomial theorem and properties of binomial coefficients, Complex Numbers, Polynomials in one and two variables, Functional equations, Sequences.

Recommended Books:
1. Higher Algebra; *H.S.Hall & S.R.Knight*
2. Higher Algebra; *Barnard & Child*
3. Polynomials; *Ed Barbeau*
4. Functional Equations: A Problem Solving Approach; *B.J.Venkatachala* (Prism Books Pvt. Ltd., Bangalore)
5. Inequalities: An Approach Through Problems (texts & readings in mathematics); *B.J.Venkatachala*, (Hindustan Book Agency)

Plane Geometry

Triangles, quadrilaterals, circles and their properties; standard Euclidean constructions; concurrency and collinearity (Theorems of Ceva and Menelaus); basic trigonometric identities, compound angles, multiple and submultiple angles, general solutions, sine rule, cosine rule, properties of triangles and polygons, Coordinate Geometry (straight line, circle, conics, 3-D geometry), vectors.

Recommended Books:
1. Geometry Revisited; *H.S.M Coxeter & S.L.Greitzer*
2. Problems in Plane Geometry; *I.F.Sharygin*
3. Plane Trigonometry; *S.L.Loney*
4. The Elements of Coordinate Geometry; *S.L.Loney*

Combinatorics

Basic enumeration, pigeonhole principle and its applications, recursion, elementary graph theory.

Recommended Books:
1. Introductory Combinatorics; *Richard A. Brualdi*
2. Discrete Mathematics: Elementary and Beyond; *László Lovász, József Pelikán, Katalin Vesztergombi*
3. Combinatorial Techniques; *S. S. Sane*
4. Combinatorics For Mathematical Olympiad; *S. Muralidharan*

Number Theory

Divisibility theory in the Integers (The Division Algorithm, the Greatest Common Divisor, The Euclidean Algorithm, The Diophantine Equation $ax + by = c$) , Fundamental Theorem of Arithmetic, Basic properties of congruence, Linear congruences, Chinese Remainder Theorem, Fermat's Little Theorem, Wilson's Theorem, Euler's Phi function and Euler's generalisation of Fermat's Theorem, Pythagorean triples (definition and properties), Diophantine equations.

Recommended Books:

1. Elementary Number Theory; *David M. Burton*
2. An Introduction to the Theory of Numbers; *Niven, Zuckerman, Montgomery*

In addition to the books listed above the the question papers of earlier years (which are available at http://olympiads.hbcse.tifr.res.in/subjects/mathematics/previous-question-papers-and-solutions) and the following books may also be found helpful while preparing for the mathematical olympiad:

1. **Problem Primer for Olympiads**
   C. R. Pranesachar, B. J. Venkatachala and C. S. Yogananda (Prism Books Pvt. Ltd., Bangalore).

2. **Challenge and Thrill of Pre-College Mathematics**
   V. Krishnamurthy, C. R. Pranesachar, K. N. Ranganathan and B. J. Venkatachala (New Age International Publishers, New Delhi).

3. **An Excursion in Mathematics**
   Editors: M. R. Modak, S. A. Katre and V. V. Acharya and V. M. Sholapurkar (Bhaskaracharya Pratishthana, Pune).

4. **Problem Solving Strategies**
   A Engel (Springer-Verlag, Germany).

5. **Mathematical Circles**
   Fomin and others (University Press, Hyderabad).

   Many other interesting references may also be found in the book
   An Excursion in Mathematics mentioned above.

   It must be noted that the topics listed above do not constitute an exhaustive list. Problems asked in the RMO and INMO may include topics not explicitly stated above.

Indian Performance in IMO:

Since the first participation in 1989, out of 204 students who represented India till date, 196 students have received medals or Honourable Mentions.

India at IMO (1989-2023)

- Gold medal: 16
- Silver medal: 73
- Bronze medal: 79
- Honourable mention: 28
- Nil: 8
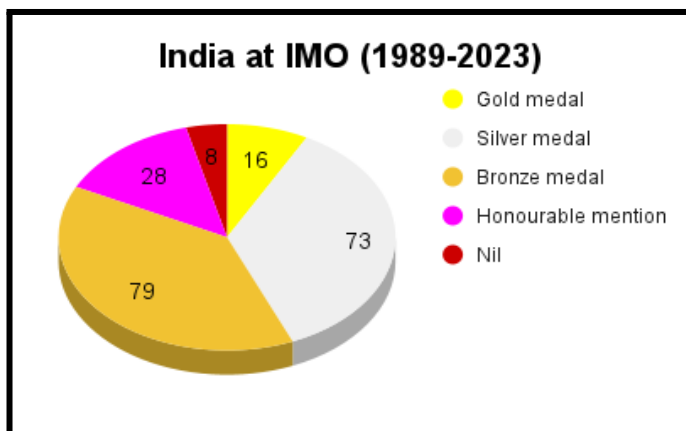
EGMO: Since the first participation in 2015, out of 25 students who represented India till date, 21 students have received medals or Honourable Mentions.

India at EGMO (2015-2023)

- Silver: 4
- Bronze: 13
- Honourable Mention: 4
- Nil: 4
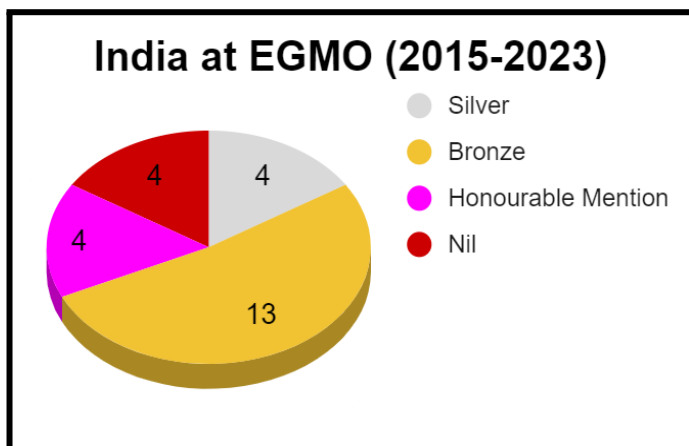
Indian Delegation for the 12th European Girls' Mathematical Olympiad (EGMO2023), Portorož, Slovenia, April 13 to 19, 2023

L-R -Rohan Goyal, Bhavya Sree N. Naga, Sunaina Pati,Gunjan Aggrawal, Sanjana Chaklo, Dr. Aditi Phadke

#	Name of the contestant	Place	Medal
1	Ms. Gunjan Aggarwal	Gurugram, Haryana	Silver
2	Ms. Sunaina Pati	Guwahati, Assam	Silver
3	Ms. Sanjana Philo Chacko	Trivandrum, Kerala	Bronze
4	Ms. Bhavya Sree N. Naga	Proddatur,Cuddapa, Andhra Pradesh	Honourable Mention
#	Name of the mentor	Institution	Designation
1	Dr. Aditi Phadke	Nowrosjee Wadia College, Pune	Leader
2	Mr. Rohan Goyal	Chennai Mathematical Institute	Deputy Leader

Individual results:

Indian Delegation for the 64th International Mathematical Olympiad (IMO2023) Chiba, Japan, July 2-13, 2023

In the pic (from left to right) - Prof. Prithwijit De , Anant Mudgal, Ananda Bhaduri, Archit Manas, Atul Shatavart Nadig, Arjun Gupta, Adhitya Venkata Ganesh Mangudy, Siddharth Choppara, Pranjal Srivastava, Sahil Mhaskar

Individual results:

#	Name of the contestant	Place	Medal
1	Mr. Atul Shatavart Nadig	Bengaluru, Karnataka	Gold
2	Mr. Arjun Gupta	Delhi	Gold
3	Mr. Ananda Bhaduri	Guwahati, Assam	Silver
4	Mr. Siddharth Choppara	Pune, Maharashtra	Silver
5	Mr. Adhitya Mangudi Venkata Ganesh	Pune, Maharashtra	Bronze
6	Mr. Archit Manas	Delhi	Bronze
#	Name of the mentor	Institution	Designation
1	Prof. Prithwijit De	HBCSE, Mumbai	Leader
2	Mr.Sahil Mhaskar	Chennai Mathematical Institute, Chennai	Deputy Leader
3	Mr.Anant Mudgal	University of California San Diego, USA	Observer A
4	Pranjal Srivastava	MIT, USA	Observer B

APMO 2023

Asia Pacific Mathematics Olympiad-2023

Individual results:

#	Name of the contestant	Place	Award
1	Atul Shatavart Nadig	Karnataka	Gold
2	Arjun Gupta	Delhi	Silver
3	Adhitya Venkata Ganesh Mangudy	Maharashtra	Silver
4	Aditya	Delhi	Bronze
5	Siddharth Choppara	Maharashtra	Bronze
6	Ananda Bhaduri	Assam	Bronze
7	Kanav Talwar	Delhi	Bronze
8	Sahid Islam	West Bengal	Honourable mention
9	Kshitij Sodani	Delhi	Honourable mention
10	Arrol Sebastian Noronha	Maharashtra	Honourable mention

Hall of Fame

Pranjal Srivastava

2022 Gold | **2021** Gold | **2019** Gold | **2018** Silver

International Mathematical Olympiad (IMO)

Undergraduate student at MIT, USA

Pranjal Warade

2015 Bronze | **2015** Bronze

International Mathematical Olympiad (IMO) | European Girls' Mathematical Olympiad (EGMO)

Graduate student at
the University of Chicago, USA

Dr. Mrudul Thatte

2012 Silver | **2011** Bronze

International Mathematical Olympiad (IMO)

Early Career Fellow at
the Columbia University, USA

Dr. Shubham Sinha

2013 Silver

International Mathematical Olympiad (IMO)

PDF at the ICTP, Italy

Dr. Kshipra Bhawalkar

2004 Silver

International Mathematical Olympiad (IMO)

Staff Research Scientist at Google, USA

Dr. Vaidehee Thatte

2005 Honorable Mention

International Mathematical Olympiad (IMO)

Research Associate,
Kings College, London, UK

Dr. Shubhangi Saraf

2003 Silver | **2002** Bronze

International Mathematical Olympiad (IMO)

Associate professor at
the University of Toronto, Canada

Dr. Swarnendu Datta

2003	2002	2001	2000
Silver	Silver	Bronze	Silver

International Mathematical Olympiad (IMO)

Assistant Professor at IISER Kolkata

Prof. Sucharit Sarkar

2002	2001
Silver	Gold

International Mathematical Olympiad (IMO)

Professor of Mathematics at University of California, USA

Prof. Abhinav Kumar

1998	1997
Gold	Silver

International Mathematical Olympiad (IMO)

Visiting research scholar, Stony Brook University, USA
&
INFOSYS VISITING PROFESSOR – ICTS–TIFR, Bengaluru

Prof. Subhash Khot

1995	1994
Silver	Silver

International Mathematical Olympiad (IMO)

Professor in the Computer Science Department at New York University, USA

Prof. K. Soundararajan

1991
Silver

International Mathematical Olympiad (IMO)

Professor of Mathematics at Stanford University, USA

Prof. Moses Charikar

1991	1990
Silver	Bronze

International Mathematical Olympiad (IMO)

Professor of Computer Science at Stanford University, USA

Prof. Upendra Kulkarni

1989
Bronze

International Mathematical Olympiad (IMO)

Associate Professor Mathematics Chennai Mathematical Institute (CMI)

Prof. Amol Dighe

1989
Bronze

International Mathematical Olympiad (IMO)

Professor at Tata Institute of Fundamental Research (TIFR), Mumbai

21

Mathematical Olympiad Program

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*HBCSE reserves the right to change the policy at any point of time.

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