INSTITUTE OF MATHEMATICS AND APPLICATIONS

(Government of Odisha)
BHUBANESWAR-751029

INFORMATION BROCHURE
2021-22

(Undergraduate Programme)
B.Sc. (Hons.) in Mathematics and Computing

(Postgraduate Programme)
M.A./M.Sc. in Computational Finance
M.A./M.Sc. in Mathematics with Data Science

VISION

To generate, disseminate and preserve knowledge in Mathematical Science and related discipline and to use this knowledge for promoting welfare of the people.

MISSION

- To be a Centre of Excellence in Mathematics and related areas by providing academic study and excitement of discovery in an atmosphere of freedom.
- To create an environment and support for faculties and students to work creatively and effectively for the betterment of society.

INSTITUTE AT A GLANCE

The Institute of Mathematics and Applications was established in the year 1999, by the Science and Technology Department, Government of Odisha with wide ranging aims and objectives as notified in the Gazette No. 18, July 23, 1999/SRAVANA, 1, 1921. In the last twenty one years since its inception, consistent with its aims and objectives, it has been active in research, teaching and nurturing talents in mathematics. Impressive activities of the Institute and its potential have persuaded the State Government to graciously lease a piece of land measuring about twenty one acres on which the TATA Steel Ltd. has constructed the present campus.

GOVERNING COUNCIL OF THE INSTITUTE

Professor M. S. Raghunathan, F.R.S., School of Mathematics, Tata Institute of Fundamental Research(TIFR), Mumbai	Chairman
Vice Chancellor, Utkal University, Bhubaneswar	Member
Principal Secretary to Government, Finance Department, Govt. of Odisha or Nominee	Member
Principal Secretary to Government, Science and Technology Department, Govt. of Odisha	Member
Chairman or his Nominee, National Board for Higher Mathematics, Department of Atomic Energy, Govt. of India	Member
Senior most Professor of Mathematics, Utkal University, Bhubaneswar	Member
Senior most Professor of Mathematics, Sambalpur University, Sambalpur	Member
Senior most Professor of Mathematics, Berhampur University, Brahmapur	Member
Director, Institute of Physics, Bhubaneswar	Member
President, Odisha Mathematical Society	Member
Professor R. Balasubramanian, Rtd. Professor of Mathematics, Institute of Mathematical Sciences, Chennai	Member
Professor Gadadhar Misra, Chairman, Department of Mathematics, IISc., Bangalore	Member
Director, Institute of Mathematics and Applications, Bhubaneswar.	Member Secretary

FACULTY MEMBERS OF THE INSTITUTE

Director

Professor Jasobanta Jena, Ph.D. in Mathematics.

Regular Faculty of IMA

Dr. Sudhakar Sahoo, Ph. D. in Computer Science.
Shri Indra Bate, M. Sc. in Mathematics, IITK.
Dr. Pinak Dhar Baliarsingh, Ph. D. in Mathematics.
Dr. Sudhansu Sekhar Rout, Ph. D. in Mathematics.
Dr. Trailokya Panigrahi, Ph. D. in Mathematics.

Guest Faculty Associated with IMA

Professor Sudarsan Padhy, Former Director, IMA.
Professor Akshaya Kumar Mishra, Former Director, IMA
Professor Jagannath Patel, Former Governing Council Member, IMA
Dr. Shishir Kumar Sahoo, Former Registrar, IMA
Professor Lokanath Sahoo, Ph. D. in Statistics.
Professor Ajit Kumar Das, Professor of Computer Science.
Dr. Pramila Dhal, Ph. D. in Mathematics.
Dr. Rupaj Nayak, Ph. D. in Mathematics.
Dr. Saudamini Nayak, Ph. D. in Mathematics.

Dr. Dilip Senapati, Ph. D. in Computational Finance.
Dr. Arnapurna Panda, Ph. D. in Mathematics.
Dr. M. R. Mohapatra, Ph. D. in Mathematics.
Dr. Tarun Kumar Chakra, Ph. D. in Mathematics.
Dr. Ch. Sanjeev Kumar Dash, Ph. D. , Computer Science.
Dr. Soumya Priyadarsini Panda, Ph. D. in Computer Science & Engineering.
Dr. Suvendu Kumar Pani, Ph. D. in Computer Science.
Dr. Jugal Mohapatra, Ph. D. in Mathemtics.
Mr. Kalu Charan Panda, M.Tech. Computer Science.
Mr. Pradipta Kumar Pattanayak, M.Tech. Computer Science.
Mr. Amitav Saran, M.Tech. Computer Science.
Mr. Pranab Kumar Mohanty, M.Tech. in Computer Science
Ms. Sasmita Mishra, M.Sc. in Computational Finance.
Mr. Nilkanta Das, M.Sc. in Computational Finance.
Mr. A. N. Behera, Rtd. Reader in Commerce.
Mr. Deepak Mishra, M.Tech. Computer Science & Engg.
Mr. Chinmayananda Padhy, M.Tech., IT.
Mr. Rudra Prasad Tripathy, M.Tech. Computer Science.
Mr. Sudhansu Ray, B.Tech. in Electronics, MBA.

UNDERGRADUATE (U.G.) PROGRAMME

- **B.Sc. (Hons.) in Mathematics and Computing, (Three Year Course)**

About the Programme:

The Institute of Mathematics and Applications is offering a well-designed programme "B.Sc. (Hons.) in Mathematics and Computing" in order to impart high quality education in Mathematics and Computing to those student who love Mathematics and at the same time keep career option open in Computer Science/Statistics. Besides a research career in Mathematics, there are varieties of other career options for the graduates of these programmes both in academics as well as in the corporate

sector. Students finishing B.Sc. (Hons.) in Mathematics and Computing from this institute have joined in Master's Degree courses and integrated Ph.D programmes in reputed R&D institutions and foreign Universities.

Eligibility:

A candidate seeking admission to this programme should have passed Higher Secondary or equivalent examination with Mathematics and English as subjects.

Intake:

The maximum number of students to be admitted into the programme is 30 which include the number of students admitted under reserved categories as prescribed by the Govt. of Odisha and in vogue at the time of admission.

Admission Fee and Course Fees:

1.   Admission Fees   :   Rs 15,000/-
2.   1st Year Course Fee   :   Rs 20,000/-
3.   2nd Year Course Fee   :   Rs 20,000/-
4.   3rd Year Course Fee   :   Rs 20,000/-

(Excluding hostel accommodation fees, mess fees and other fees).

POSTGRADUATE (P.G.) PROGRAMME

- ### M.A./M.Sc. in Computational Finance, (Two Year Course)

Finance as a subject has emerged to be an extremely involved branch of knowledge with growing number of stock exchanges and investors in the field. Risk and return that constitute cardinal aspects of the subject remain a major concern for every investor, individual as well as institutional. Volumes of data encountered in the processes make investment decisions difficult. In apparently erratic behaviors of the market mathematicians try to capture patterns vis-à-vis predictability, which may help investors decide on their investment. Computational Finance deals with portfolio selection, options and futures, asset pricing, managing derivative markets and hedging under uncertainty. The course imparts, besides, basic grounding on finance, expertise in modeling under uncertainty, a high level computational skill geared towards finance, knowledge of financial accounting and regulations. The aim is to produce a competent financial engineer capable of analyzing existing financial products and suggest new innovative products for the financial market. It is a unique venture on the part of the Institute to offer this prized programme in India.

Eligibility:

A candidate seeking admission to this programme should have passed Bachelor's Degree with Mathematics/Statistics as honours/pass subject.

Intake:

The maximum number of students to be admitted into the programme is 30 which include the number of students admitted under reserved categories as prescribed by the Govt. of Odisha and in vogue at the time of admission.

Admission Fee and Course Fees:

1. Admission Fees   :   Rs 50,000/-
2. 1st Year Course Fee   :   Rs 65,000/-
3. 2nd Year Course Fee   :   Rs 65,000/-

 (Excluding hostel accommodation fees, mess fees and other fees).

- ## M.A./M.Sc. in Mathematics with Data Science, (Two year Course)

Establishing pattern in a pile of huge data in quest of optimality, precision, time efficiency or making smarter decisions amidst diverse information are challenges faced by corporate sector in a world taken over by digital revolution. The role of a data scientist is to predict what is likely to happen given past data of what has happened and recommend decision makers cost effective changes to existing procedures and strategies. To meet this objective a data scientist explores and examines data from various perspectives to determine weaknesses, trends, and opportunities, and employs machine learning and statistical methods, invents new algorithms to solve problems and builds new tools to automate work. So professionals with background in Data Science are now most sought after in business, industry, scientific labs, etc. This course aims at producing competent data scientists with strong foundation in mathematics to address the above requirements in corporate sector while having ample scope for a career option in academics as well. The syllabus is designed for in-depth theoretical background in data science, hands on training in laboratory; interfere with industry with varieties of electives to choose for different requirements. The course is an amalgamation of Mathematics, Statistics, Computation, Big Data Analysis, Machine Learning including Deep Learning, Business Analytics and much more.

Eligibility:

A candidate seeking admission to this programme should have passed Bachelor's Degree with Mathematics/Statistics as honours/pass subject.

Intake:

The maximum number of students to be admitted into the programme is 30 which include the number of students admitted under reserved categories as prescribed by the Govt. of Odisha and in vogue at the time of admission.

Admission Fee and Course Fees:

1.	Admission Fees	:	Rs 50,000/-
2.	1st Year Course Fee	:	Rs 75,000/-
3.	2nd Year Course Fee	:	Rs 75,000/-

 (Excluding hostel accommodation fees, mess fees and other fees).

The detailed course structures of all the courses (UG & PG) are available in IMA website.

METHOD OF SELECTION

Selection of candidates for admission into UG and PG courses shall be made on the basis of the entrance test. The entrance test will be of two hours duration. Previous year question papers are available in the institute website for reference.

Eligible candidates can appear in the entrance test. Applicants appearing at the qualifying examination can also appear in the entrance test. However, if selected, they have to submit the results of the qualifying examination at the time of admission alongwith Provisional Certificate, College/School Leaving Certificate and Mark sheet.

APPLICATION PROCEDURES (U.G. & P.G.)

Applicants are advised to study the information brochure carefully and satisfy themselves that they are eligible for admission to the academic programme for which they are applying. If any stage it is found that a candidate does not satisfy the eligibility conditions or the information finished with the application is incorrect, the application will be cancelled. Interested candidate has to download the application form from the institute website using the link **https://iomaorissa.ac.in/admissions** Applicant has to deposit the required amount of application fee in the **Account no: 914010022030086, IFSC code: UTIB0002502, Axis Bank, Bhubaneswar**. Care should be taken to enclose the self-attested photo copy of online payment slip towards application fee and the transaction number of the payment should be written in the appropriate place of application form.

Applicants who are not in state of making payment in online mode can pay the required amount of application fee***** in form of a demand draft in favour of **Director, IMA, Bhubaneswar.** The demand draft in original should be enclosed with the application form. The applicant has to write the demand draft details in the appropriate place of application form. Filled in application form alongwith all enclosures in a closed envelope superscribed as **"APPLICATION FOR ADMISSION INTO _____ COURSE** (*mention either* **PG** *or* **UG***)"* should be sent to the **Academic Co-ordinator, Institute of Mathematics and Applications, Andharua, Bhubaneswar-751029 either by speed/registered post** so as to reach at the institute on or before the last date fixed by the institute. (The candidates are also advised to send the scanned copy of application in PDF to the email ID: admission.ima@iomaorissa.ac.in).

* Application Fee for all the courses
Rs 700/-(Rupees seven hundred only) for general category candidates.
Rs 400/-(Rupees four hundred only) for Odisha state domicile ST/SC candidates only.

Information regarding admit card, test centres etc. will be announced in the Institute website: https://iomaorissa.ac.in/admissions. Applicants are advised to visit the IMA website regularly for getting update information.

DOCUMENTS TO BE SUBMITTED WITH THE APPLICATION FORM

The following documents are to be enclosed with the application form.

- ✓ Photo copy (self-attested) of High School Certificate.

- ✓ Photo copy (self-attested) of High School Mark Sheet.

- ✓ Photo copy (self-attested) of Intermediate/Higher Secondary Certificate.

- ✓ Photo copy (self-attested) of Intermediate/Higher Secondary Mark Sheet.

- ✓ Photo copy (self-attested) of Caste Certificate (If belong to ST/SC candidates of Odisha state domicile.)

- ✓ Photo copy (self-attested) of valid certificate (If belong to Differently Abled Category)

- ✓ Demand Draft of appropriate value (in original) in favour of **Director, IMA, Bhubaneswar** and payable at Bhubaneswar or Photo Copy (self-attested) of online payment slip towards application fee.

- ✓ Two recent passport size photographs.

   In addition to all the above documents the following documents have to be submitted for P.G. admission.

- ✓ Photo copy (self-attested) of Bachelor's Degree certificates.

- ✓ Photo copy (self-attested) of Bachelor's Degree Mark Sheet.

FACILITIES

- ### Campus Infrastructure:

Located in Bhubaneswar, Institute of Mathematics and Applications with integrated modern wi-fi campus has a highly functional design and strong rationale to every aspect of the design. The serene environment provides a perfect setting for a professionally rewarding educational experience. Student activity areas such as a lounge and cafeteria, spacious classrooms of varying seating capacities, conference halls, faculty chamber, Library are available.

- ### Uninterrupted Power Supply:

Uninterrupted 24×7 electric supply to hostels, library and laboratories are ensured through alternate sources like solar panels, electric UPS and diesel generators.

- ### Computer Laboratory:

The Institute has two well-equipped and furnished computer laboratories that hosts servers and number of PCs, running different operating systems.

- ### Library:

The Library has more than 9900 references on mathematical, financial, computational and related subjects as well as professional journals, both national and international. It collectively supports the teaching, research and extension programmes of the Institute. All students, faculty members and employee of the institute are entitled to Library facilities on taking library membership. Library remains open from 10:00 A.M. to 8:00 P.M. on all working days.

- ### Hostel:

The Institute provides limited hostel facility to both boys and girls separately. The excellent study environment and sophisticated accommodation of the hostels with wi-fi facility inside the hostel premises are available for students. Security personnel are alert round the clock and incase of medical emergency, vehicle facility is also available.

TEST CENTRES

CITY	CODE		CITY	CODE
Ahmedabad	**AHM**		Hyderabad	**HYD**
Balasore	**BLS**		Kanpur	**KNR**
Bengaluru	**BAN**		Kerala	**KER**
Bhopal	**BHO**		Kolkata	**KOL**
Bhubaneswar	**BBS**		Koraput	**KPT**
Brahmapur	**BAM**		Mumbai	**MUM**
Chandigarh	**CHA**		Rajsthan	**RAJ**
Chennai	**CHN**		Raipur	**RAI**
Delhi	**DLH**		Sambalpur	**SBP**
Guwahati	**GHT**		Surathkal	**SUR**

Applicants can opt for three test centres from the above list and the corresponding code must be entered in the appropriate box of the application form. However the Institute reserves the right to allot a centre to a candidate other than those opted by him/her in case of exigency.

IMPORTANT DATES

Date of availability of application forms and prospectus	**07/06/2021**
Last date of receipt of completed application form	**15/07/2021**
Date of entrance test (Tentative)	**31/07/2021**

ALL CORRESPONDENCE TO BE ADDRESSED TO

The Academic Co-ordinator, Institute of Mathematics and Applications,
Andharua, Bhubaneswar-751029
E-Mail Id: admission.ima@iomaorissa.ac.in
Web site: https://iomaorissa.ac.in
Contact Number: 9861298890