

HBNI Board of Studies, Mathematical Sciences.
Meeting held virtually on 18 May 2022
(following extensive discussion over email
and in an earlier (virtual) meeting held on 27 April 2022)

Members present

1. Meena Mahajan, IMSc. (Convenor)
2. Surya Ramana, HRI. (co-Convenor)
3. Mahuya Datta, ISI-Kolkata
4. K N Raghavan, IMSc.
5. Brundaban Sahu, NISER.
6. B Sury, ISI-Bangalore.
7. Jugal K Verma, IIT-Bombay.

Agenda

Discussion: Proposal to start an Integrated MSc-PhD programme in Mathematics at NISER.

Decisions

1. The BoS recognises that the integrated MSc-PhD program, which aims to catch exceptionally bright students young, directly after their bachelor's degree, and train them through a Masters program for PhD and research, is worth introducing.
2. The BoS recommends that the program be started this academic year 2022 itself.
3. The proposed course structure and syllabi for Semesters 1 to IV are fine.
4. The proposal for Semesters V and VI needs to be reconsidered. There are some reservations regarding the requirements in Semesters V and VI. The reservations, and proposed recommendations to overcome them, are summarized below. These may be discussed within NISER and a suitable revised proposal for Semesters V and VI sent to HBNI central office for consideration as soon as possible.

Reservations

1. On completion of course work, students of this program should be on par with students of the PhD program who have completed course work. This requires some more advanced courses to be included in the program, in Semesters V and VI.
2. A Master's level dissertation stretching across an entire year is not desirable or appropriate in the integrated MSc-PhD program for Mathematics.



Recommendations

1. In Semester V, replace the “40 credits for dissertation” with “24 credits for dissertation, 8 credits for Elective-III, 8 credits for Elective-IV”.
2. In Semester VI, replace the “40 credits for dissertation work” with “24 credits for dissertation, 8 credits for Core Course Topology-II (MA 606 of the PhD program), 8 credits for Elective-V”.

Other optional suggestions

(These may be considered at NISER and, if suitable, incorporated in the next curriculum revision.)

1. MA 702: Include reference “A primer of real functions”, fourth edition, R. P. Boas (Carus monograph, The Mathematical Association of America, 1960).
2. M704 (typo; meant to be MA 704): Include reference “Advanced mathematical methods by scientists and engineers”, C. M. Bender and S. A. Orszag (Springer Verlag, 1999).
3. MA 803: Include reference “First concepts of topology”, W. G. Chinn and N. Steenrod (The Mathematical Association of America, 1978).
4. MA 861: The suggested book by Vera Pless may be replaced by “Fundamentals of error-correcting codes” by W. C. Huffman and V. Pless (Cambridge University Press, 2003).
5. MA 868: Include reference “Probability theory”, S. R. S. Varadhan (Courant Institute of Mathematical Sciences Lecture Notes vol. 7, AMS, Providence, Rhode Island, 2001).
6. MA 883: Include reference “Harmonic analysis on symmetric spaces - Euclidean space, the Sphere, and the Poincare Upper Half-Plane”, Second ed., A. Terras (Springer Verlag, 2013).
7. Design and include an elective course entitled “Dynamical systems” along the lines of “Dynamical systems” by J. E. Marsden, and, “Mathematical methods of classical mechanics” by V. I. Arnold. (Subject to availability of faculty to offer such a course.)



(Meena Mahajan
Convener,
BoS Mathematical Sciences, HBNI)

Minutes of the 30th Meeting of the Academic Council

Date: 7th October, 2022 (Friday), at 14:30 hrs
Venue: HBNI Council Hall & WebEx Platform



Homi Bhabha National Institute

(A Deemed to be University u/s 3 of UGC Act, MHRD &
an Aided Institution of the DAE, Govt. of India)

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Website : www.hbni.ac.in

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21st November, 2022

Minutes of 30th Meeting of the Academic Council

The following members were present during the 30th Academic Council meeting held in hybrid mode at HBNI Council Hall and online WebEx platform on 7th October, 2022 at 14:30 Hrs.

Members:

Prof. P.D. Naik, Dean & VC (Officiating), HBNI	Chairman
Prof. E. D. Jemmis, Professor, IISc, Bangalore	Member
Prof. Jayant B. Udgaonkar, IISER, Pune	Member
Prof. B. Venkatraman, Director, IGCAR	Member
Prof. Sudhakar Panda, Director, NISER	Member
Prof. Sumit Som, Director, VECC	Member
Prof. S.D. Banavali, Convener, BoS (Medical & Health Sciences)	Member
Prof. Gautam Bhattacharyya, SINP	Member
Prof. V. Ravindran, Director, IMSc	Member
Prof. Pinaki Majumdar, Director, HRI	Member
Prof. R.B. Grover, Convenor, BoS (Applied Systems Analysis)	Member
Prof. B. Mohanty, Convenor, BoS (Integrated Masters Prog)	Member
Prof. S.M. Yusuf, Convener, BoS (Physical Sciences), BARC	Member
Prof. A.P. Tiwari, Convenor, BoS (Engg. Sciences)	Member
Prof. S. Kannan, Convenor, BoS (Chemical Sciences)	Member
Prof. Meena Mahajan, Convenor, BoS (Mathematical Sci.)	Member
Dr. Prasanna Venkatraman, Convenor, BoS (Life Sci.)	Member
Prof. P.C.Selvin, Registrar, HBNI	Secretary

Permanent Invitees:

Prof. B.K. Dutta, Institute Chair Professor, HBNI
Prof. B.S. Tomar, Institute Chair Professor, HBNI
Prof. A.K. Dureja, Associate Dean, HBNI
Prof. D.K. Maity, Associate Dean, HBNI
Prof. S.K. Ghosh, Associate Dean, HBNI
Prof. Hema Rajaram, Dean Academic (Life Sci), BARC
Prof. R. Tewari, Dean Academic (Engg. Sci-I), BARC
Prof. T.K. Ghanty, Dean Academic, Chemical Science, BARC
Prof. S. Mukhopadhyay, Dean Academic (Engg. Sci-II), BARC
Prof. Sandeep Basu, Dean Academic (Health Sciences), BARC
Prof. C.P. Paul, Dean, Student Affairs, RRCAT
Prof. S.R. Mishra, Dean, Academic, RRCAT
Prof. Sarabjit Paul, Dean, Academic (Engg. Sci), VECC
Prof. Pranay Swain, Dean Academic, NISER
Prof. Prakash Mathews, Dean Academic, Physical Sciences, SINP
Prof. Partha Saha, Dean Academic, Chemical/ Life Sciences, SINP
Prof. Sudip Sengupta, Dean Academic, IPR

Special Invitee

Prof. P.R. Vasudeva Rao, Ex-Vice Chancellor, HBNI



1.0 Welcome by the Registrar, HBNI

Prof. P.C.Selvin, Registrar, HBNI welcomed all the members for the 30th meeting of the Academic Council; informed the council that Prof. P.D.Naik, Dean, HBNI has assumed office as Vice Chancellor (Officiating), HBNI on 4th October 2022 following the completion of tenure by Prof. P.R.Vasudeva Rao on 3rd October 2022. Registrar requested Prof. P.D.Naik to present his opening remarks.

2.0 Opening remarks by Prof. P.D.Naik, Vice Chancellor (Officiating), HBNI

Prof. P.D.Naik, Dean and Vice-Chancellor (Officiating), HBNI also welcomed the gathering and briefly presented the following points :

New degree programs:

HBNI is presently offering 48 academic programs. The following new degree programs have been started at NISER, Bhubaneswar during 2022-2023: i) Int. PhD (Double Degree) - (Chemical Sciences) ii) Int. PhD (Double Degree) - Life Sciences iii) Int. PhD (Double Degree) - Mathematical Sciences iv) M.Sc., in Medical and Radiological Physics.

Also, two new Fellowships i) Paediatric Palliative Medicine and ii) Cancer Cytogenetics are introduced at TMC, Mumbai.

Value-Added Courses:

Sarabhai Management Development Programme for senior executives of DAE organisations (4th Edition with participation mainly from NPCIL) has been conducted. For the first time, certain unique courses from HBNI were offered on the NPTEL platform this year: i) Neutron Scattering for Condensed Matter (Prof. Saibal Basu ~ 300 students enrolled), ii) Accelerator Physics (Prof. Pitamber Singh & others ~2000 students enrolled). Both the above courses are approved by AICTE as Faculty Development Programme courses.

The following courses are planned for NPTEL_Swayam in the forthcoming days.

- i) Nuclear and Radiochemistry (Prof. Tomar & others)
- ii) Environmental Studies (Prof. P.M. Ravi & Dr. Jitendra Singh) and
- iii) Disaster Management – Challenges in CBRNEM (Dr. H. Mishra).

Theme Meetings:

Condensed Matter Physics (23-24 June 2022)

The discussion meeting on Condensed Matter Physics was held at SINP, Kolkata during 23-24, June 2022; 19 talks of half an hour each (out of which 16 talks were delivered physically and 3 were presented online), 7 short online presentations by Ph.D students from CIs and 20 poster presentations by local Ph.D students from VECC and SINP. This has provided an outcome in terms of

