



Applied Research International
The Future of Education

Applied Research International
offers an opportunity for a rewarding career in Merchant Navy
through
Diploma in nautical Science leading to B.Sc. (Nautical Science)
in association with Indira Gandhi National Open University

About ARI

Applied Research International is one of the Asia's leading maritime training institutions offering a wide range of training solutions to the shipping industry. We had trained approximately 20 thousand mariners of various nationalities. ARI is one of the few marine Institutes which offer programs designed for every stage of career in merchant navy – from Pre-Sea training for entry level cadets to professional training for senior officers.

Setup by a doyen of marine education in India, Capt. S. S. S. Rewari, ARI Institute for marine education and training has rapidly grown into a primary force in the region

It has great depth of experience in providing marine education with excellent facilities and a dedicated staff to impart the skills, knowledge, competencies and attitude necessary for a career in the merchant navy.

Based in New Delhi and recognized by the Directorate General of Shipping, Govt. Of India, ARI is one of the premier marine education institutions in India.

ARI is an ISO 9002 Organization

Our Vision

“To be the benchmark for Marine Education and Training”

Our Mission

“To impart dynamic, skill based education and training to meet the ever changing needs of shipping companies and seafarers”

Our Policy

“To provide proactive education and training in an environment, which fosters a quest for knowledge and self growth to encourage professional and personal development.”



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Resources

Headquarter in New Delhi, India, ARI have human force of approximately 200 skilled associates at multiple locations, with wide area of specializations. ARI has invested in state of the art facilities and equipment spread over multiple locations in New Delhi and Mumbai.

In addition to state of the art training facilities at Hauz Khas and Saket in New Delhi we have a sprawling 7-acre campus in Chattarpur New Delhi which provides a conducive learning environment for staff and students.

The facilities in our campus comprises of among other things Classrooms; Hostel Facilities students; Seamanship Lab; Workshops; Library; Computer lab; Parade Ground; Faculty Rooms; Catering Facilities; Outdoor Sports Facilities: Football, Badminton, Volleyball, Basketball and Cricket; Indoor games.

The campus is fully equipped with other training equipment like Lifeboat, Liferaft, Models, Safety Equipment, etc.

Our Training centres provides facilities of Centrally cooled classrooms; Library; Computer Laboratory; Engine Room Simulator; Ship Maneuvering Simulator; Liquid Cargo Handling Simulator; Radar/Arpa equipment, Marine Workshop; Electronics Lab; Dormitories; Saloon; Administrative Block; Recreation Area.

The institute has a cluster of Pentium computers centrally connected by LAN, LCD Projectors, laser printers, color ink-jet printers and scanners etc.

We have a progressive and forward thinking pool of faculties who power the philosophy and ethos of ARI. Lead by some of the India's best respected marine Stalwarts, Faculty includes experts with diverse specialization ranging from Nautical Sciences to Marine Engineering, from Information Technology to HRD



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Our Philosophy

The organization is committed to foster a climate in which learning is a joy and a lifelong process.

ARI believes that it is important to continue to train officers of the highest quality to ensure that the Indian seafaring community maintains the high reputation it has earned and realizes its potential to become a powerful force in the international maritime world.

ARI aims to achieve its objectives by becoming the benchmark for marine education and training.

ARI is not only an organization imparting education and training, but also is diligently pursuing Research and Development in marine technology with particular emphasis on marine simulation and computer based training aids.

Career in Merchant Navy

Merchant Navy can be a rewarding career, both financially and professionally.

The nature of a job at sea presents unique demands and challenges. Self reliance and resourcefulness will become a part of your personality. You will be required to employ both your theoretical knowledge and practical skills to meet the challenges of the sea.

Life at sea can be tough. The work is strenuous and physically demanding.

The benefits however, include a satisfaction as an officer, free boarding and lodging, a very handsome salary and an opportunity to become a mariner and belong to one of the finest professions.

**ARI HAS A UNIQUE RECORD OF 100% PLACEMENTS FOR OUR
PRE-SEA STUDENTS OVER THE LAST DECADE**



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Preliminary Information on B. Sc. (Nautical Science) Program

1. PROGRAM STRUCTURE AND DELIVERY:

This program is divided in three stages:-

Stage	Semester	Duration	Teaching Method	Award of qualification
Stage 1	Semester 1 and 2	1 year (Pre Sea)	Contact program	Diploma in Nautical Science
Stage 2	Semester 3, 4 and 5	2years onboard ship (At sea)	Distance Learning	Higher Diploma in Nautical Science
Stage 3	Semester 6	4months (Post Sea)	Contact Program	Bsc (Nautical Science) Degree by IGNOU Certificate of Competency (COC) By D G Shipping

2. ELGIBILITY:

2.1: Educational Qualification

- I. Pass in 10+2 or equivalent with Mathematics, Physics and Chemistry with a PCM aggregate of not less than 60%.
- OR
- II. With Physics as individual subject in one of the year, B. Sc. in Physics, Mathematics, Chemistry or Electronics with an average of not less than 55% of marks in the final year.
- OR
- III. B.E./B.Tech. Degree from I.I.T or from a college recognized by AICTE

And Should have passed in the English language as a subject, at either 10th or 12th standard or in the Degree/Diploma course, conducted by the Board or any University with not less than 50% marks.



2.2: Age Limit

For (I) above not more than 20 years

For (II) above not more than 22 years and

For (III) above, not more than 24 years on date of admission to the training course

The age limit is relaxable for 2 years in case of girl candidates.

2.3: Physical Standards

Medically fit as per the standards set by M. S. Medical Examination Rules, 2000.

2.4: Eyesight

6/6 in each eye without visual aids. Normal colour vision. Candidates have to undergo a full eyesight test conducted by the Mercantile Marine Department before being finally selected for the course.

3. ADMISSIONS OPEN FOR:

Courses starting on 1st August 2004 and January 2005

4. LAST DATE OF SUBMISSION OF APPLICATION:

30th June 2004. Late applications may be considered.

For prospectus, admission forms, and counseling, please contact:

Applied Research International,
B 1 Hauz Khas,
New Delhi -16
Phone: 91-11-51655123-28
Fax: 91-1126858331
e-mail: careers@ariedu.com

For the reference of applicants excerpts from Indira Gandhi National Open University Prospectus are enclosed below.

June, 2004

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Further information on the Indira Gandhi National University programmes may be obtained from the University's office at Maidan garhi, New Delhi – 100 068.
or its website <http://www.ignou.ac.in>.

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RECOGNITION

IGNOU is a National University established by an Act of Parliament in 1985 (Act No. 50 of 1985), IGNOU Degrees/Diplomas/Certificates are recognised by all the members of the Association of Indian University (AIU) and are at par with Degrees/Diplomas/Certificates of all Indian Universities/Deemed Universities/Institutions vide UGC No. F. 1-8/92 (CPP) dated February 1992 and AIU circular no. EV/B(449)/94/176915-177115 dated January, 1994.

1. THE UNIVERSITY

The Indira Gandhi National Open University was established by an Act of Parliament in 1985 to achieve the following objectives:

- Democratising higher education by taking it to the doorstep of the learners;
- Providing access to high quality education to all those who seek it irrespective of age, region or formal qualifications;
- Offering need-based academic programmes at affordable cost in emerging professional and vocational areas;
- Promoting and developing distance education and maintaining standards in distance education in the country.

The University offers both short-term and long-term innovative programmes leading to Certificates, Diplomas and Degrees. The programmes are launched with a view to fulfill the learner's needs for:

- Certification;
- Improvement of skills;
- Acquisition of professional qualification;
- Continuing education and professional development at work place;
- Self-enrichment; and
- Diversification of knowledge.

The University uses a judicious multiple media mix for instruction. The instructional package comprises a combination of one or more of the following:

- Self-instructional print materials;
- Audio and video cassettes;
- Telecast/broadcasts through the dedicated education channel of Doordarshan (Gyan Darshan) and the All India Radio (Gyan Vani) Channel;
- Teleconferencing;
- Interactive Radio-counselling;
- Face-to-face counselling;
- Tele-counselling;
- Assignments;
- Project work;
- On line teaching-learning;
- Extended contact programmes; and
- Laboratory work.

Study material is self-instructional and is developed by teams of experts drawn from different universities/institutions all over the country. The print material is scrutinised by the content experts, supervised by the instructors/unit designers and edited in-house before printing.

2. DIPLOMA IN NAUTICAL SCIENCE LEADING TO B. SC. DEGREE PROGRAMME IN COLLABORATION WITH THE DIRECTORATE GENERAL OF SHIPPING

2.1.1 Brief History and Background

India is a large manpower supplier to the international shipping industry and is reputed for providing highly qualified and well trained personnel to work on Indian owned as well as foreign owned merchant ships. Indian officers are also employed as managers and technical experts in shipping companies all over the world. Statistics available from the authoritative sources suggest that Indian Officer will continue to be in demand in the foreseeable future but not without a stiff competition from officers of other Nationalities. Realising the need of the industry and to ensure that its training programs continue to be of the highest quality, the School of Engineering and Technology (SOET) of the Indira Gandhi National Open University (IGNOU), in collaboration of the Directorate General of Shipping has developed this vocational training program which includes a combination of strong underpinning knowledge of marine subjects, practical application of the theory and correct attitude.

2.1.2 Aims and Objectives

- 2.2.1 This training program aims at preparing the candidates to face with fortitude and endurance, the hardships of life at sea and to inspire in them a sense of devotion to duty, feeling of good will & comradeship, which is essential for the life at sea.
- 2.2.2 The programme is of Six Semesters, of which, first five are of 6 months duration and the Sixth Semester is of 4 months duration. First two Semesters i.e. 1 year is on-shore training which is designed to impart basic knowledge on the type of merchant ships, ship operations, types of goods carried by ships, shipping trade and a good foundation in the basic principles of navigation and the environmental science. During, the subsequent three semesters, candidates are trained on job i.e. onboard a ship in the practical application of the theory learnt.
- 2.2.3 Sixth and final semester is conducted at an approved Training Institute. The emphasis during this semester is to prepare the candidate for the examination of 2nd Mate Certificate of Competency conducted by the Directorate General of Shipping, Ministry of Shipping. On successful completion of this examination, the candidate is awarded a degree in B. Sc. (Nautical Science) and a Certificate of Competency which enables him to become an officer on a merchant ship.
- 2.2.4 18 Credits are awarded on successful completion of each Semester i.e. a total 108 credits (18 × 6) would be required for award of B.Sc (Nautical Science) degree.

3. PROGRAM STURCTURE AND DELIVERY

3.1 This program is divided in three stages:-

Stage	Semester	Duration	Teaching Method	Award of qualification
Stage 1	Semester 1 and 2	1 year (Pre Sea)	Contact program	Diploma in Nautical Science
Stage 2	Semester 3, 4 and 5	2years onboard ship (At sea)	Distance Learning	Higher Diploma in Nautical Science
Stage 3	Semester 6	4months (Post Sea)	Contact Program	Bsc (Nautical Science) Degree by IGNOU Certificate of Competency (COC) By D G Shipping

3.2 The instructional package for the program consists of the instructional Material in the form of books/booklets to be provided by IGNOU to individual learners directly or through the approved training institute.

3.3 The training institutes shall deliver the theoretical and practical components of the course as decided from time to time.

Medium of Instruction : **ENGLISH**
Duration : **3 years (6 Semester)**
Registration Fee : **Rs. 500/-**

4. ELIGIBILITY

4.1 Educational Qualification

- (1) Pass in 10+2 or equivalent with Mathematics, Physics and Chemistry with a PCM aggregate of not less than 60%.

OR

- (2) With Physics as individual subject in one of the year, B. Sc. in Physics, Mathematics, Chemistry or Electronics with an average of not less than 55% of marks in the final year.

OR

- (3) B.E./B.Tech. Degree from I.I.T or from a college recognized by AICTE.

and

should have passed in the English language as a subject, at either 10th or 12th standard or in the Degree/Diploma course, conducted by the Board or any University with not less than 50% marks.

4.2 Age Limit

For (1) above not more than 20 years

For (2) above not more than 22 years and

For (3) above, not more than 24 years on date of admission to the training course.

The age limit is relaxable for 2 years in case of girl candidates.

4.3 Physical Standards

Medically fit as per the standards set by M. S. Medical Examination Rules, 2000.

4.4 Eyesight

6/6 in each eye without visual aids. Normal colour vision. Candidates have to undergo a full eyesight test conducted by the Mercantile Marine Department before being finally selected for the course.

5. ADMISSION SCHEDULE

- 5.1 The admission for this program is offered twice a year i.e. in January/February and July/August. IGNOU will invite applications from prospective learners through advertisements in national & regional dailies detailing all relevant information and criteria for admission. Selection candidates shall be assigned by the University to Training institutes depending on geographical locations & preference of Learners.

Application forms can be obtained from the regional centres of IGNOU listed in Annexure – 1 or could be downloaded from the IGNOU website : <http://www.ignou.ac.in>.

The completed application form should be sent on or before 30th June 2004 to

- (i) any one of the training institutes (list enclosed as annexure – I)
 - (ii) and a photocopy of the application to IGNOU (with the registration fees).
- 5.2 Admission to this program is open to both sponsored and non-sponsored candidates. In case sponsored candidates, the training institutes are required to collect the duly completed forms from the candidate and send them to IGNOU with the requisite fees and complete the enrolment formalities. For sponsored candidates, respective Training Institutes are required to satisfy themselves as to the credibility of a Shipping company in case the sponsoring shipping company is not a member line of Indian National Ship owner's Association (INSA)/Foreign Owners Ship Manager's Association (FOSMA)/Maritime Association of Ship owners Ship managers and Agents (MASSA). In cases, where a sponsored candidate, after successful completion of on-shore training of 1year, is not absorbed by the sponsoring shipping company within a reasonable time of 9 months, then, the DGS/IGNOU would henceforth reduce intake capacity of such training institute accordingly for future training courses. This may also lead to withdrawal of course and/or institute's approval by DGS.

In case of non-sponsored candidates, basis of selection will be interview conducted by training institutes. Representatives of IGNOU and or DGS would

participate in the interview process interviews would be conducted at following addresses.

Indira Gandhi National Open University

Maidan Garhi

New Delhi – 110 068

(ii) T.S. Chanakya

Karave, Nerul

New Delhi – 400 706

(iii) Marine Engineering and Research Institute

P – 19, New Taratalla Road,

Kolkata – 700 088

(iv) National Institute of Port Management

East Coast Road, Uthandi,

Chennai – 600 119

Mercantile Marine Department

Willington Island,

North End PO 3701

Kochi – 682 009

Interviews are expected to be held around 10th – 15th July. Firm dates and venue of interview will be intimated by the respective training institute.

5.3 Mere fulfilling the eligibility Criterion does not ensure admission to this programme.

5.4 Admission to the Advanced Diploma in Nautical Science which includes on-board training will be possible only once the candidate gets the placement on the ship which will be the responsibility of the candidate himself.

5.5 The fee for the course will consist of two components i.e. the fee to be paid to IGNOU @ Rs.5000/- per semester and the fee which is to be paid to the Training Institute. The IGNOU fee would be paid by way of demand draft drawn in favour of IGNOU and payable at New Delhi. Fee component to be paid to training institute may vary from one institute to another.

6. COURSE CONTENT FOR THE 1ST YEAR

1ST SEMESTER

Applied Mathematics

Unit 1 : Algebra

Unit 2 : Vectors

Unit 3 : Statistics and Probability

Unit 4 : Co-ordinate Geometry

Unit 5 : 3-Dimensional Geometry

Unit 6 : Spherical Trigonometry

Unit 7 : Differential Calculus

Unit 8 : Integrated Calculus

Unit 9 : Differential Equations

Applied Science

Unit 1 : Mechanics

Unit 2 : Heat

Unit 3 : Oscillations

Unit 4 : Sound

Unit 5 : Light

Unit 6 : Physical Chemistry

Unit 7 : Inorganic Chemistry

Unit 8 : Organic Chemistry

Electricity and Electronics

Unit 1 : Static Electricity

Unit 2 : Current Electricity and its Effects

Unit 3 : Measurement of Electrical Quantities

Unit 4 : Basic Electronics

Unit 5 : Transistors

Unit 6 : Transmitters, Antenna and Propagation

Unit 7 : Radar

Navigation

Unit 1 : Earth

Unit 2 : Parallel and Plane Sailings

Unit 3 : Mercator Sailing

Unit 4 : Dead Reckoning and Days Work

Unit 5 : Concepts of Time

Unit 6 : Celestial Sphere and Equinoctial System of Coordinates

Unit 7 : Daily Motion and Horizon System of Coordinates

Unit 8 : Sextant and Altitude Correction

Unit 9 : Amplitude

Unit 10 : Conduct of vessels in any Conditions Visibility

Unit 11 : Conduct of Vessels in Sight of One-and-another

Unit 12 : Conduct of Vessels in Restricted Visibility

Unit 13 : Lights Shapes and Sound Signals

Unit 14 : Meteorology

Unit 15 : Energy Budget

Unit 16 : Water Vapour in the Atmosphere and Adiabatic Processes

Unit 17 : Condensation and Precipitation Phenomena

Unit 18 : Coding and Decoding of Weather Messages

Unit 19 : Chart Work

Unit 20 : Problems on Sailing

Unit 21 : Passage Planning

Unit 22 : Position Determination

Cargo Handling and Stowage

Unit 1 : Categories of Cargo

Unit 2 : Methods of Carrying Cargoes

Unit 3 : Care of Cargo on Board Ship

Unit 4 : Cargo Handling Safety

Unit 5 : Cargo Handling Equipment

Unit 6 : Rope Work

Unit 7 : Blocks Purchases and Lifting Appliances

Unit 8 : Safe Working Practice

Unit 9 : Ship Construction-I

- Unit 10 : Ship Construction-II
- Unit 11 : Displacement and Buoyancy
- Unit 12 : Statical Stability

Lab-I : Applied Science and Computer Lab

Lab-II : Cargo Lab

Lab-III : Workshop Practicals

- Unit 1 : Hydraulics
- Unit 2 : Pneumatics
- Unit 3 : Application to Ship
- Unit 4 : Fitting
- Unit 5 : Welding
- Unit 6 : Plumbing
- Unit 7 : Carpentry

IInd SEMESTER

Navigation-II

- Unit 1 : solar System
- Unit 2 : Position Determination at Noon
- Unit 3 : Position Fixing
- Unit 4 : Instruments
- Unit 5 : Bridge Team Work
- Unit 6 : Watch Keeping Principles and Duties
- Unit 7 : Risk of Collision, Safe Speed
- Unit 8 : Traffic Separation Schemes
- Unit 9 : Atmosphere & Energy Budget
- Unit 10 : Tropical Storms and Weather Forecasting
- Unit 11 : Oceanography

Cargo Handling, Stowage and Seamanship

- Unit 1 : Cargo Pumps and Piping Systems
- Unit 2 : Gas and Chemical Tankers
- Unit 3 : Cargo Operations
- Unit 4: Tackels and Purchases
- Unit 5 : Anchors and Anchor Work
- Unit 6 : Safe Working Practices

Ship Operations - II

Unit 1 : Hull Structures and Ship Plans

Unit 2 : Movement of Centre of Gravity

Unit 3 : List and Trim

Unit 4 : Marpol 73/78

Unit 5 : Maritime law

Unit 6 : SOPEP

Unit 7 : Engine Room Layout

Unit 8 : Electrical Equipment

Unit 9 : Propeller and Bow Thruster

Unit 10 : Maintenance and Machine Drawing

Communication Skills

Unit 1 : Signalling by Morse Code

Unit 2 : International Code of Signals

Unit 3 : Radio Telephony and VHF

Unit 4 : Equipment Maintenance

Unit 5 : Familiarization with GMDSS Equipment

Unit 6 : Procedures for Emergency Message : Safety, Urgency and Distress

Unit 7 : Satellite Communications

Unit 8 : Modern Communication Methods

Lab-I

Unit 1 : DBMS

Unit 2 : Networks

Unit 3 : Advanced Word Processing Section

Unit 4 : Ship Board Application

Unit 5 : Voyage Planning

Unit 6 : ECDIS

Unit 7 : TIDES

Project

Workshop Practices-II

Unit 1 : Demonstration of Use of Tools

Unit 2 : Dismantelling and Assembling Engine

Unit 3 : Opening of Heat Exchanger, Cleaning, Repair and Plug Tubes

Unit 4 : Dismantling and Assembling of Different Auxiliaries

Unit 5 : Whippings and Splices

Unit 6 : Throwing Heaving Lines Rope and Chain Stoppers
(Bosun's Chair and Staging)

Unit 7 : Types of Paints and Painting Procedures

7. GUIDELINES FOR FILLING UP THE APPLICATION FORM

The following instructions will help you in filling-up the APPLICATION FORM for the admission.

- (1) The demand draft should be payable to IGNOU at New Delhi (Sr. No. 3 of the application form).
- (2) Write the code of the Training Institute you would like to be attached to from the list given in **Annexure-1**. (Sr. No. 4 of the application form).
- (3) If your name is SUMAN VERMA, then write as follows in the boxes provided for (Sr. No. 5 of the application form).

S	U	M	A	N		V	E	R	M	A
---	---	---	---	---	--	---	---	---	---	---

- (4) Please write your Father's/Husband's/Mother's name. If the name is RAM VERMA, then write it as follows (Sr. No. 6 of the application form);

R	A	M		V	E	R	M	A
---	---	---	--	---	---	---	---	---

- (5) Fill in your mailing address where you would like to receive your study material and all other correspondence. Do not give post box no. as address. Leave a box blank between each unit of address like house no., street name, P.O. etc. (Sr. No. 7 of the application form).
- (6) For Sr. No. 8 follow the rule of Date/Month/Year, e.g., 5th June 1976 should be written as

0	5	/	0	6	/	1	9	7	6
---	---	---	---	---	---	---	---	---	---

- (7) For Sr. No. 9 to 16 of the application form, please cross (X) the appropriate box following the instructions given in the relevant items.
- (8) For Sr. No. 17, note that the Qualification Code is in three digits e.g. 001, 002, 003 or 004. You have to write only the highest qualification code, which could be found in the **Annexure-2**.

Checklist

Before sending the form to IGNOU please check whether you have :

- (a) affixed your **photograph** and **signed** over it,
- (b) enclosed the following certificates:
 - (i) Certificate in support of your highest **educational qualification**
 - (ii) **Student Card** duly filled in along with photograph
 - (iii) **Acknowledgement Card** duly filled in
 - (iv) **Demand Draft** for Rs. 500/-

(Please write your name, address and **'B.Sc. (Nautical Science)'** on the reverse of the DD)

The registration fee is to be paid only the form of a DEMAND DRAFT drawn in favour of IGNOU and payable at New Delhi with the Xeroxed copy of application form at IGNOU Headquarter

Contact for details :

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School of Engineering and Technology
Indira Gandhi National Open University
Maidan Garhi, New Delhi - 110068