

## SHIPBUILDING OPERATIONS AND TECHNOLOGY

JULY 8-12, 2024

**LECTURER-IN-CHARGE:** Dr. Philip Koenig, Adjunct Professor, Department of Mechanical Engineering, University of British Columbia

**TUITION: \$2887**

### DAILY CLASS ROUTINE:

Monday: Classroom facility opens at 0730 and will be secured at 1700. Class begins at 0800 and ends at 1700 with a 1-hour break for lunch. Optional ice breaker after class – Za Pizza, 350 Third Street, Cambridge.

Tuesday: Classroom facility opens at 0730 and will be secured at 1700. Class begins at 0800 and ends at 1700 with a 1-hour break for lunch.

Wednesday: Classroom facility opens at 0730 and will be secured at 1700. Class begins at 0800 and ends at 1700 with a 1-hour break for lunch.

Thursday: Field trip to General Dynamics Bath Iron Works. Bus departs front of Draper Laboratory (555 Technology Square) at 0700 and returns at 1800. Lunch will be provided during the tour.

Friday: Classroom facility opens at 0730 and will be secured at 1200. Class begins at 0800 and ends at 1200.

**COURSE DESCRIPTION AND OBJECTIVE:** This course introduces students to the shipbuilding industry. It provides a basic understanding of how the industry works and what drives outcomes. The scope includes new construction and repair, naval and commercial, U.S. and overseas. Concepts and principles are accompanied by practical and up-to-date examples. Current directions and issues in the industry are discussed. Topics include:

- Shipbuilding production metrics
- Shipyard workflow
- Shipyard facilities and layout
- Steel fabrication and assembly technologies; advanced manufacturing
- Composite ship construction
- Production planning, scheduling, and control
- Information technology
- Production economics and capital investment planning
- Ship repair
- Global shipbuilding industry competitiveness

An all-day field trip to Bath Iron Works is planned for Thursday, July 20. Students will be guided by experienced shipyard personnel as they walk through a major shipbuilder's physical value chain. The day begins at material receipt, and continues through fabrication, assembly, integration, and pier side outfitting. We will visit two offsite production facilities and the main yard. At the conclusion of the tour,

Bath Iron Works managers will be available for a question-and-answer session. The tour and discussions depend on the availability of Bath Iron Works personnel and are subject to U.S. government restrictions. Bus transportation will be provided to and from Cambridge. The class will return to Cambridge in the late afternoon.

## LECTURERS

Dr. Philip Koenig	Adjunct Professor, Department of Mechanical Engineering, University of British Columbia
Mr. Patrick Cahill	Independent Consultant, Cahill Consulting LLC
Mr. Albert Horsmon	Horsmon and Associates Marine Consultants LLC
Dr. Jong-Gye Shin	Professor Emeritus, Department of Naval Architecture and Ocean Engineering, Seoul National University
Mr. Mark Spicknall	Principal Consultant, First Marine International Ltd.

## Bath Iron Works Tour

General Dynamics Bath Iron Works

## SPECIAL INSTRUCTIONS FOR BATH IRON WORKS TOUR:

Bath Iron Works (BIW) is a heavy industrial environment and visitors are required to dress suitably. Steel-toed work-boots and long-sleeve shirts are required. Safety protection such as hats, eye protection, and hearing protection will be provided. Cameras, cell phones with and without cameras, and recording devices are prohibited. If circumstances require, this tour will be cancelled and additional lecture material will be substituted.

## GENERAL INFORMATION

**LOCATION:** Classes will be held in the Hill Building, Building NE-80, Room 1409 at 1 Hampshire Street, Cambridge, MA. The classroom is adjacent to MIT's main campus at The Charles Stark Draper Laboratory. Click [here](#) for a map of relevant locations for the course.

**COURSE ELIGIBILITY AND CLASSIFICATION:** This course is open to US Citizens only. Applicants are expected to have mature technical backgrounds which, either through experience or education is at least equivalent to graduate education. This course is UNCLASSIFIED. No visit request or security clearance is needed.

**APPLICATION AND TUITION PAYMENT:** Course enrollment is limited. Seats are reserved in order of receipt of complete applications with 'confirmation of enrollment' upon receipt of payment or obligation of funding through your training coordinator (SF-182).

Note: If course demand is high, we reserve the right to release any unconfirmed enrollments in order to provide a wait-listed student an opportunity to attend. Nominally we will do so three weeks before course start date. However, we will make every effort to notify you beforehand and request your intentions.

Flexible payment options, including:

- 1) Wire transfer
- 2) Credit card (VISA, MasterCard, Discover Card, American Express)

### 3) Check

Please see detailed directions on our website for application and payment. Link on left side of the 2N course webpage <http://2n.mit.edu/> or direct to link of <http://naval-pro-summer.mit.edu/>.

It is critical that you provide the name of your training coordinator and/or the person who will be making the tuition payment on your application as we must receive payment in order to hold your place in the course – without payment (or obligated funds via approved SF-182) we may need to release your seat to someone else on the wait list.

In advance of payment, a training officer approval (block 3b of SF182) obligating funds is accepted to confirm enrollment. Full payment is due MIT at least one week before course.

**CANCELLATION:** Cancellations within ONE (1) week of the first day of the course will be subject to a \$100.00 charge. Substitution by another applicant will be allowed provided an application is received.

**ACCOMMODATIONS:** Course tuition DOES NOT include accommodations. Each student must arrange his or her own transportation and hotel accommodations. Hotel space in Cambridge is very limited during the summer, so early advance reservations are strongly recommended. We have reserved a small block of rooms at the government rate at a local hotel which is located a short walking distance from the MIT classroom and provides convenient access to the MBTA Red Line at the Kendall/MIT station. We will send you information about our hotel block when we confirm enrollment and payment (or obligated funds via approved SF-182) in the course. The hotel will release the hold on any unclaimed rooms **FOUR (4)** weeks prior to the first day of the course. Car rental is neither necessary nor recommended.

**STUDENT ATTIRE:** Business casual. Steel toe shoes are required for the BIW field trip.

**REFRESHMENTS:** Continental breakfast will be provided in the morning and a light snack each afternoon. Lunch will be provided on those days when working lunches/guest speakers are scheduled.

**EMERGENCY CONTACT INFORMATION:** During class, students may be contacted by leaving a message at 617-258-2285 or by e-mail at [dsegall@draper.com](mailto:dsegall@draper.com).

**PORTABLE ELECTRONIC DEVICES:** You may bring any portable electronic devices with you into the classroom.