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# Industrial Marine Training & Applied Research Centre (IMTARC)

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## Shipbuilding & Repair Entry-Level Training Program Request For Proposals



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The west coast shipbuilding industry is poised to undergo an industrial renaissance. Firms on the west coast have already won major defence contracts valued in excess of \$700 million dollars that could collectively entail more than four million person hours of work. Further expansion will be driven by the recently announced National Shipbuilding Procurement Strategy (NSPS). This major capital program will see the construction of approximately 50 new ships for National Defence and the Coast Guard over the next thirty years valued at over \$40 billion and entail some 70 million person-hours of work. In addition, 70 smaller federal government vessels are scheduled for replacement and in-service support. An announcement of the two “Centres of Excellence” selected under the NSPS process is slated for mid to late October 2011.

Success in capitalizing on the opportunities presented will require a coordinated strategy. A key element will be to quickly introduce measures to ensure that there are the right numbers of skilled workers to execute the business. The proposed Industrial Marine Training & Applied Research Centre (IMTARC) is the logical response. The Centre is envisioned as a scalable, industry-managed organization exclusively dedicated to developing and maintaining the skills, knowledge and capacity of the shipbuilding and repair workforce. It will also serve as an essential vehicle for the transfer of best practices and leading edge manufacturing technologies into the industry by leveraging off the research, development and training capabilities of key post-secondary educational partners. The range of training will be both broad and specific to the sector’s requirements, including entry level training for new entrants, leadership and management skills, technology transfer, and, very importantly, revitalized apprenticeship programs.

A comprehensive training needs assessment was completed in March 2011 under the direction of the Shipbuilding & Repair HR Planning Committee. The analysis both quantified and qualified future workforce demand to 2013. Depending on the business scenario, anticipated new openings in the sector range from 1,064 to 4,280 positions. The identified initial training priorities include:

- Shipwright & Marine Fitter Apprenticeship Programs
- Marine Foundation Program
- Marine Upgrading Program
- Supervisory Training Program
- Specialized industry-based skills training (e.g. dock master training, painting)
- Naval Engineering, Naval Architecture & Design

The Province of BC, through the Labour Market Partnership Program (LMP), is providing financial support to the sector for the development of priority training programs for the Shipbuilding & Repair sector. An IMTARC Committee, comprising senior industry representatives, has been established within the structure of the Resource Training Organization to oversee the IMTARC initiative including the investment of LMP training resources. The IMTARC Committee has placed an initial priority on the development, piloting and evaluation of an entry-level training program for the sector.

## Project Objectives & Deliverables

The broad goal of the shipbuilding & repair entry-level training program is to provide prospective new entrants with the skills and knowledge that will enable them to gain entry-level employment in the sector, concentrated largely in the Lower Mainland and south Vancouver Island regions. Key priorities for sector employers are that participants are screened for their suitability to work in the sector and that those completing the program will have received a comprehensive orientation to the industry, safety training and developed a range of basic vocational and technical skills that will enable them to work productively in entry-level positions. It is assumed that these workers will receive additional formal and work-based training in specific occupations, including possible entry into formal apprenticeship programs in the marine-related trades.

The project is intended to meet the following sequenced objectives / deliverables:

1. The development / definition of a Program Model that would include:
  - Program goals and objectives
  - Target audience(s)
  - General competency / content areas
  - Certification model
  - Linkages to other programs (e.g. marine trades)
  - Program duration / scheduling
  - Delivery strategy
  - Funding sustainability strategy (beyond pilot)
  - Recruitment / industry placement strategies
  - Pilot delivery and evaluation strategy
  - Industry advisory mechanism
  
2. The development of a Program Outline that will include:
  - Program Overview
  - Occupational Analysis Chart
  - Schedule of Time Allotment
  - Program Content (Competency, Objectives, Learning Tasks, Content)
  - Recommended Reference Textbooks
  - Training Provider Standards for Instructors
  - Training Provider Standards for Facilities
  - Tools and Equipment
  
3. The development and / or adaptation of modular Learning Resources that support the delivery of the new program
  
4. The implementation and evaluation of a pilot delivery of the new program

## Expectations & Assumptions

- The organization (s) selected to lead the project will establish an industry steering group to guide program development and pilot delivery and ensure that the entry-level program is fully aligned with industry requirements.
- The project will proceed under a contractual arrangement between RTO and a lead training organization with capabilities that are aligned with the requirements of the Shipbuilding and Repair sector.
- Collaboration on this project among several post-secondary training providers with capabilities that are aligned with the requirements of the Shipbuilding and Repair sector is strongly encouraged. .
- The organization (s) that undertakes the development and pilot delivery of the program will be eligible for, and able to access, public funding for regular program delivery beyond the development and pilot phase.
- The content of the entry-level program will incorporate the more general competencies that are contained in the Program Outlines for the Shipwright and Marine Fitter programs. (Occupational Analysis Charts are contained in Appendix C. Full Program Outlines are available on request)
- If deemed appropriate by industry, the entry-level training program will be designed to integrate with the Shipwright and Marine Fitter trades programs that are currently in development.
- The pilot delivery of the program will commence in early to mid 2012 in at least one geographic location in close proximity to shipbuilding & repair industry operations. (Additional sites are desirable if delivery resources can be secured)
- Learning resources being developed for the revitalized Marine Fitter and Shipwright trade programs will be available for adaptation and incorporation into the entry-level program.
- Copyright for all original materials and resources developed under this project will reside with RTO / Province of BC.

## Selection Criteria

The chart below outlines the criteria that will be used to evaluate written proposals.

Mandatory Criteria			
Electronic version of proposal received as per submission guidelines	Yes/no		
Availability to commence and complete the work within the timeframe	Yes/no		
Desirable Criteria			
	Weight	Maximum Score	Minimum Requirement
Understanding of Client Objectives and Context	15%	15	7
Suitability of Proposed Methodology	25%	25	15
Experience with Similar Projects	30%	30	15
Cost-effectiveness	30%	30	20
<b>TOTAL POINTS</b>	<b>100%</b>	<b>100</b>	<b>62</b>

## Proposal Review Process

All proposals will be evaluated by a sub-committee of the Committee based on the evaluation criteria provided. Reference checks may be conducted only on those proponents who submit a proposal that satisfactorily meets all criteria elements. The sub-committee will rank the proposals and may request to interview proponents prior to making a recommendation to the full Committee. A contract with the Resource Training Organization will be entered into with the successful proponent upon full Committee approval.

## Delivery of Proposals

**CLOSING: 5:00 PM on Friday, October 28<sup>th</sup>, 2011.** Only electronic submissions, using template provided, in Word or pdf are acceptable.

Proposals should be submitted by email to: Geoff Stevens, Project Manager, IMTARC – [geoff.stevens@shaw.ca](mailto:geoff.stevens@shaw.ca).

## Contact Information

Geoff Stevens  
IMTARC Project Manager  
Tel: 778 823 1102  
[Geoff.stevens@shaw.ca](mailto:Geoff.stevens@shaw.ca)

All enquiries relating to this RFP should be submitted via e-mail to the above contact. Organizations that are interested in receiving additional information on this RFP prior to the closing deadline are requested to send an e-mail to the above Contact asking to be placed on the distribution list.

**Appendix A- Work Plan Template**

<b>Element</b>	<b>Deliverables</b>	<b>Methodology/Tasks</b>	<b>Resources/Data Sources</b>
•	•	1.	•
•	•	1.	•
•	•	2.	•

**Appendix B - Budget Template**

<b>Item</b>	<b>Daily Rate</b>		<b>Days Required</b>	<b>Total</b>
Professional Services				
Expenses				
Travel				
Other				
			<b>Total</b>	<b>\$</b>

Appendix C – Shipwright & Marine Fitter Occupational Analyses

## Occupational Analysis Chart - Shipwright

<b>SHIPWRIGHT TRADE</b>  <b>A</b>	Describe the Shipwright Trade  <span style="float: right;">A1</span>	Describe the Apprenticeship Program  <span style="float: right;">A2</span>	Describe Shipbuilding and Repair Industry Terminology  <span style="float: right;">A3</span>				
	1	1	1   2				
<b>SAFE WORK PRACTICES</b>  <b>B</b>	Describe Federal and Provincial Workplace Safety Regulations  <span style="float: right;">B1</span>	Describe Safe Shop Practices for Workplaces in the Shipbuilding and Repair Industry  <span style="float: right;">B2</span>	Recognize Unique Shipbuilding and Repair Industry Safety Hazards and Risks  <span style="float: right;">B3</span>	Describe the requirements for and use of Shipbuilding & Repair Industry Specific PPE  <span style="float: right;">B4</span>			
	1	1	1	1			
<b>SHIP CONSTRUCTION &amp; REPAIR</b>  <b>C</b>	Describe Purpose of Drawings and Blueprints  <span style="float: right;">C1</span>	Describe the Basic Principles of Lofting  <span style="float: right;">C2</span>	Describe Scribing and Fitting Components for Installation  <span style="float: right;">C3</span>	Demonstrate Basic Stick and Gas Welding and Cutting  <span style="float: right;">C4</span>	Read and Interpret Drawings and Blueprints of Ship Structure  <span style="float: right;">C5</span>		Build a Jig for use in Ship Construction  <span style="float: right;">C6</span>
	1	1	1	1	2   3	2	
	Describe Classification Societies' Standards for Shipbuilding and Repair  <span style="float: right;">C7</span>	Develop a Simple Flat Panel Using Lofting Techniques  <span style="float: right;">C8</span>	Create Components for Frames and Backbone from the Lofting Floor  <span style="float: right;">C9</span>	Locate, Align and Level Ship Outfitting Components and Systems  <span style="float: right;">C10</span>	Describe Layup and Repair Methods for Composite Materials and Components  <span style="float: right;">C11</span>		Layup and Repair Composite Materials and Components  <span style="float: right;">C12</span>
	2	2	2	2	2		2
	Describe uses of Specialty Materials (Polycarbonates, Plexiglass, Nylons, PVC, ABS, etc.)  <span style="float: right;">C13</span>	Describe the Steps for Laying and Setting a Keel Based On a Hull Design  <span style="float: right;">C14</span>	Lay and Set a Keel Based on a Hull Design  <span style="float: right;">C15</span>	Explain How CAD System Tools and Functions Are Used To Create a Piece Part Template  <span style="float: right;">C16</span>	Create a Simple Piece Part Template using a Drafting Software System  <span style="float: right;">C17</span>		Describe the Process Steps of Hull Construction  <span style="float: right;">C18</span>
	2	2	2	3	3		3

Develop and Fabricate a Hull Section				
				C19
		3		

Describe Methods for Shaping Materials into Compound Curves				
				C20
		3		

Develop and Fabricate Materials into Compound Curves				
				C21
		3		

Describe Alignment Tools, Systems and Methods used in the Industry				
				C22
		3		

Position and Install Hull Units				
				C23
		3		

Use Quality Control and Surveying				
				C24
		3		

Describe the Purpose and Locations of Various Hull Markings				
				C25
		4		

Layout and Apply Hull Markings				
				C26
		4		

Describe the Construction of Wooden Vessels				
				C27
		4		

Construct a Section of a Lofted Vessel				
				C28
		4		

Align Ship Components				
				C29
		4		

<b>DOCKING A VESSEL</b>
<b>D</b>

Describe Methods of Docking a Ship				
				D1
		3		

Describe Methods used for Blocking, Shoring and Supporting a Vessel in Dry-dock				
				D2
		3		

Describe Principles and Methods for Launching a Newly Constructed Ship				
				D3
		3		

Dock a Vessel				
				D4
		4		

## Occupational Analysis Chart – Marine Fitter

<b>MARINE FITTER TRADE</b>  <b>A</b>	Describe the Marine Fitter Trade  <span style="float: right;">A1</span>	Describe the Apprenticeship Program  <span style="float: right;">A2</span>	Describe Shipbuilding and Repair Industry Terminology  <span style="float: right;">A3</span>			
	1	1	1   2			
<b>SAFE WORK PRACTICES</b>  <b>B</b>	Describe Federal and Provincial Workplace Safety Regulations  <span style="float: right;">B1</span>	Describe Safe Shop Practices for Workplaces in the Shipbuilding and Repair Industry  <span style="float: right;">B2</span>	Recognize Unique Shipbuilding and Repair Industry Safety Hazards and Risks  <span style="float: right;">B3</span>	Describe the Requirements for and use of Shipbuilding & Repair Industry Specific PPE  <span style="float: right;">B4</span>		
	1	1	1	1		
<b>SHIP CONSTRUCTION &amp; REPAIR</b>  <b>C</b>	Describe Purpose of Drawings and Blueprints  <span style="float: right;">C1</span>	Describe the Basic Principles of Lofting  <span style="float: right;">C2</span>	Build a Jig for use in Ship Construction  <span style="float: right;">C3</span>	Describe Classification Societies' Standards for Shipbuilding and Repair  <span style="float: right;">C4</span>	Develop a Common Camber Deck Plate Using Lofting Techniques  <span style="float: right;">C5</span>	Describe Scribing and Fitting Components for Installation  <span style="float: right;">C6</span>
	1	1	1	1	1	1
	Locate, Align and Level Ship Outfitting Components and Systems  <span style="float: right;">C7</span>	Read and Interpret Drawings and Blueprints of Ship Structure  <span style="float: right;">C8</span>	Develop a Body Plan for a Simple Hull Section Using a Table of Offsets  <span style="float: right;">C9</span>	Develop a Plan for a Simple Bulkhead Section Using a Table of Offsets  <span style="float: right;">C10</span>	Create Components for Frames and Keel Using Simple Shape Information from the Lofting Floor  <span style="float: right;">C11</span>	Describe the Steps for Laying and Setting a Keel Based On a Hull Design  <span style="float: right;">C12</span>
	1	2   3	2	2	2	2
	Lay and Set a Keel Based on a Hull Design  <span style="float: right;">C13</span>	Describe the Process Steps of Hull Construction  <span style="float: right;">C14</span>	Develop and Fabricate a Hull Section  <span style="float: right;">C15</span>	Describe Alignment Tools, Systems and Methods Used in the Industry  <span style="float: right;">C16</span>	Position and Install Hull Units  <span style="float: right;">C17</span>	Use Quality Control and Surveying  <span style="float: right;">C18</span>
	2	3	3	3	3	3

Describe Methods for Shaping Metal Plates into Compound Curves				
				C19
			4	

Shape Metal Plates into Compound Curves				
				C20
			4	

Describe the Purpose and Locations of Various Hull Markings				
				C21
			4	

Layout and Apply Hull Markings				
				C22
			4	

Repair Damaged Shell Plate Using Ship Fitting Techniques				
				C23
			4	

**DOCKING A VESSEL**

**D**

Describe Methods used for Blocking, Shoring and Supporting a Vessel in Dry-dock				
				D1
			4	