

# **Professional Development Short Course On:**

A Third World Submarine Perspective

## **Instructor:**

B.S. Uppal, Commodore, Indian Navy (Ret.)

**ATI Course Schedule:**

<http://www.ATCourses.com/schedule.htm>

**ATI's Advanced Undersea Warfare:**

[http://www.atcourses.com/advanced\\_undersea\\_warfare.htm](http://www.atcourses.com/advanced_undersea_warfare.htm)

***Applied Technology Institute (ATI)***

*Stay Current In Your Field • Broaden Your Knowledge • Increase Productivity*

349 Berkshire Drive • Riva, Maryland 21140

888-501-2100 • 410-956-8805

Website: [www.ATCourses.com](http://www.ATCourses.com) • Email: [ATI@ATCourses.com](mailto:ATI@ATCourses.com)



# **Applied Technology Institute (ATI)**

**Stay Current In Your Field • Broaden Your Knowledge • Increase Productivity**



**[www.ATCourses.com](http://www.ATCourses.com)**

## **Boost Your Skills with On-Site Courses Tailored to Your Needs**

**349 Berkshire Drive**

**Riva, Maryland 21140**

**Telephone 1-888-501-2100 / (410) 965-8805**

**Fax (410) 956-5785**

**Email: [ATI@ATCourses.com](mailto:ATI@ATCourses.com)**

The Applied Technology Institute specializes in training programs for technical professionals. Our courses keep you current in the state-of-the-art technology that is essential to keep your company on the cutting edge in today's highly competitive marketplace. Since 1984, ATI has earned the trust of training departments nationwide, and has presented on-site training at the major Navy, Air Force and NASA centers, and for a large number of contractors. Our training increases effectiveness and productivity. Learn from the proven best.

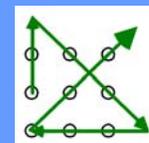
For a Free On-Site Quote Visit Us At: [http://www.ATCourses.com/free\\_onsite\\_quote.asp](http://www.ATCourses.com/free_onsite_quote.asp)

For Our Current Public Course Schedule Go To: <http://www.ATCourses.com/schedule.htm>



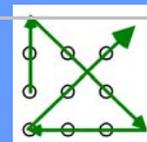
# Why Developing Nations Desire Subs

- Developing nations desire submarine forces because they:
  - Are the most effective weapons platform for expenditure (“cheapest platform for the military mission”)
  - Provide greater flexibility
  - Counter surface ASW forces effectively
  - Are multi-mission platforms (ASUW, Special Forces, I&W, ASW)
  - Are covert (and deployable without political ramifications)
  - Do not require supporting escorts



# Submarine Forces

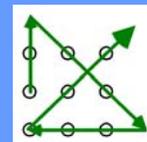
<b>Importers</b>	<b>Have</b>	<b>Plan</b>		<b>Co-Producer</b>	<b>Have</b>	<b>Plan</b>
Algeria	2	0		Argentina	4	4
Chile	4	0		Brazil	4	3
Columbia	2	0		China	45	0
Cuba	3	0		India	18	6
Ecuador	2	0		North Korea	25	0
Egypt	8	2-6		Pakistan	6	3
Greece	10	0		South Korea	4	6
Indonesia	2	0		Turkey	15	7
Iran	3	0				
Israel	5	0		<b>Exporters</b>		
Libya	6	0		Australia		
Malaysia	0	?		China		
Peru	9	0		France		
Philippines	0	?		Germany		
Saudi Arabia	0	?		Netherlands		
Singapore	2	1		Russia		
south Africa	3	0		South Korea		
Syria	3	0		Sweden		
Taiwan	4	4		U.K.		
Thailand	0	?				
Venezuela	2	0				



# “Typical” Sonar Detection Ranges

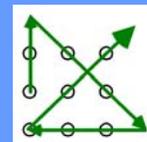
<b>Platform Detected</b>	<b>Foxtrot</b>	<b>Kilo</b>	<b>1500</b>
15 kt merchant	6-8	12-15*	10-12
20 kt warship	8-10	18*	14
30kt warship	10-12	25-30*	20
Snorkeling SS	4-5	8-10*	8

\* Best detection in category  
Range is in nautical miles



# Tactical Procedures

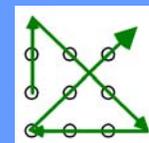
- In preparation for “war Patrol” the shipyard will change the screws
- The ship will depart during the night
- Outside of harbor the submarine will submerge and commence patrol
- On patrol, the boat will stay deep all day and snorkel at night
- While on patrol all officers keep watch
- Patrol philosophy is EMCOM
- Battery in not allowed to go below 80%
- The normal sonar tactic is to place the sonar above the layer
  - Going to PD is an instant detection
- Choice of attack lies with the submarines
- The threat to the submarine in by an ASW helo with dipping sonar





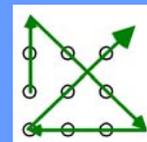
# Assessment of third world Submarine Threat

- Modern subs & weapons will continue to proliferate in the third world
- Modern SS of today is a capable adversary
  - Quiet: Battery/Snorkeling
  - Torpedoes are lethal
  - Submerged endurance
  - Training & readiness are key
- Future more capable third world submarines
  - Additional quieting
  - Advanced Torp/ASCMS
  - Increased submerged endurance using AIP
  - Crew proficiency / infrastructure projection forces



# Assessment of third world Submarine Threat (Cont.)

- Various factors complicate ASW OPs in third world
  - Difficult environment
  - Restricted OP area/zero PIM
  - Combat damage sensitivity
  - "Home field" advantage
- A few third world Subs can pose a serious threat to power projection forces
  - Consequences of a successful third world sub attack can be catastrophic



# Boost Your Skills with On-Site Courses Tailored to Your Needs



The Applied Technology Institute specializes in training programs for technical professionals. Our courses keep you current in the state-of-the-art technology that is essential to keep your company on the cutting edge in today's highly competitive marketplace. For 20 years, we have earned the trust of training departments nationwide, and have presented on-site training at the major Navy, Air Force and NASA centers, and for a large number of contractors. Our training increases effectiveness and productivity. Learn from the proven best.

ATI's on-site courses offer these cost-effective advantages:

- You design, control, and schedule the course.
- Since the program involves only your personnel, confidentiality is maintained. You can freely discuss company issues and programs. Classified programs can also be arranged.
- Your employees may attend all or only the most relevant part of the course.
- Our instructors are the best in the business, averaging 25 to 35 years of practical, real-world experience. Carefully selected for both technical expertise and teaching ability, they provide information that is practical and ready to use immediately.
- Our on-site programs can save your facility 30% to 50%, plus additional savings by eliminating employee travel time and expenses.
- The ATI Satisfaction Guarantee: You must be completely satisfied with our program.

**We suggest you look at ATI course descriptions in this catalog and on the ATI website. Visit and bookmark ATI's website at <http://www.ATIconourses.com> for descriptions of all of our courses in these areas:**

- Communications & Computer Programming
- Radar/EW/Combat Systems
- Signal Processing & Information Technology
- Sonar & Acoustic Engineering
- Spacecraft & Satellite Engineering

I suggest that you read through these course descriptions and then call me personally, Jim Jenkins, at (410) 531-6034, and I'll explain what we can do for you, what it will cost, and what you can expect in results and future capabilities.

***Our training helps you and your organization remain competitive in this changing world.***