

Министерство образования и науки Украины
Севастопольский национальный технический университет



**Новые Тенденции в Проектировании Судов =
New Trends in Ship Designing**

МЕТОДИЧЕСКИЕ УКАЗАНИЯ

к практическим занятиям по дисциплине
“Английский язык” для студентов II курса
специальности 7.100201 «Корабли и океанотехника»
дневной формы обучения

Севастополь
2009



УДК 629.123+656.61.052

Новые Тенденции в Проектировании Судов = New Trends in Ship Designing. Методические указания к практическим занятиям по дисциплине “Английский язык” для студентов II курса специальности 7.100201 «Корабли и океанотехника» дневной формы обучения / Сост. О.Г. Скидан. – Севастополь: Изд-во СевНТУ, 2009. – 24 с.

Целью методических указаний является совершенствование умений и навыков чтения и перевода статей по специальности, а также устной монологической и диалогической речи в сфере будущей профессии.

Методические указания рассмотрены и утверждены на заседании кафедры ПРГЯ (протокол № 11 от 18.05.09г).

Допущено учебно-методическим центром и научно-методическим Советом СевНТУ в качестве методических указаний.

Рецензент: Михайлова Е.В., к.филол.н., доцент кафедры практики романских и германских языков Севастопольского национального технического университета.

СОДЕРЖАНИЕ

Введение	4
1. UNIT I. The USA's new littoral combat ship	5
2. UNIT II. The navy's new ship DDG-1000	8
3. UNIT III. Design for bigger and faster Ro-Ro's	11
4. UNIT IV. The hull of the bulk carrier	14
5. UNIT V. Oil tankers safety	17
Test	20
Keys	22
Библиографический список	23

ВВЕДЕНИЕ

Методические указания предназначены для студентов 2-го курса специальности «Корабли и океанотехника» дневной формы обучения. Данные методические указания могут быть использованы как на практических занятиях, так и для самостоятельной работы.

Методические указания направлены на расширение лексического запаса студентов, совершенствование навыков ознакомительного чтения и перевода оригинальной литературы по специальности, а также устной речи в монологической и диалогической формах. Тексты указаний взяты из современной оригинальной литературы на английском языке, их тематика соответствует специальности.

Методические указания состоят из 5 уроков, каждый из которых содержит текст, упражнения для закрепления лексического материала урока, творческие задания коммуникативной направленности, а также упражнения для самопроверки. Лексический материал включает как профессионально-направленную терминологию, так и лексику на общие темы.

UNIT I. THE USA's NEW LITTORAL COMBAT SHIP

1. Answer the following questions.

- 1) Are warships necessary in time of peace?
- 2) Are there any differences between the modern warships and the warships of the World War II? What are they?

2. Read the new words.

combatant – надводный боевой корабль;

deployable – боеготовый;

littoral – приморский;

to counter – отражать, наносить ответный удар;

attack boat – штурмовой десантный катер;

UAV – Unmanned Aerial Vehicle – беспилотный летательный аппарат;

UUV – Unmanned Undersea Vehicle – автоматически управляемое подводное транспортное средство;

USV – Universal Specialty Vehicles;

intelligence gathering – сбор разведывательных данных, разведка;

trimaran – трехкорпусное судно;

semi-planing monohull – однокорпусное судно с переходным режимом движения;

DID – Domestic Intelligence Division – разведка на территории страны.

3. Read the text.

The Littoral Combat Ship (LCS) is the U.S. Navy's newest surface combatant class. Optimized for shallow seas and operations within 100 miles of shore, but deployable across the ocean, LCS ships are a centerpiece of the USA's new focus on littoral warfare. They will help to counter growing "asymmetric" threats like coastal mines, quiet diesel submarines, global piracy, and terrorists on small fast attack boats. They will also perform intelligence gathering and scouting using helicopters and UAVs, offer some ground combat support capabilities, and share tactical information with other Navy aircraft, ships, submarines, and joint units. UAV robot aircraft, and robotic UUV and USV vehicles will give these small ships the specialized capabilities they require for each of these roles and the quick-replace adaptability they need to keep up.

At present, 2 teams are competing for the final LCS design, in a program that could be worth more than \$30 billion when all is said and done. The General Dynamics team is offering a futuristic but practical high-speed trimaran based on Austal designs and experience. The Lockheed Martin team offers a high-speed semi-planing monohull based on designs that have set trans-Atlantic speed records.

DID places recent developments in context by explaining a bit more about the US Navy's new surface combatant; detailing the teams, key time line events, and



contract awards under the program to date; and providing additional resources and links to complete our in-depth coverage.

4. Suggest the English equivalents or find them in the text.

Возрастающая угроза, мировое пиратство, бесшумная субмарина, предлагать возможности, делиться информацией, способность приспосабливаться к быстрым заменам, стоить 30 миллиардов долларов, устанавливать скоростной рекорд, последние усовершенствования, ключевые непрерывно происходящие события, заключение контракта, всестороннее освещение (событий).

5. Answer the questions.

- 1) What is the LCS?
- 2) What are the distinctive features of the LCS?
- 3) What are the threats the LCS is able to deal with?
- 4) What are the functions of the LCS?
- 5) What vehicles can give the LCS the quick-replace adaptability?
- 6) What kinds of design do two competitive teams offer?
- 7) How does the Domestic Intelligence Division complete the given information?

6. Read the following statements and decide if they are correct or not. Prove your point of view.

- 1) The Littoral Combat Ship can be used only in deep waters.
- 2) Though the LCS is an important part of the USA's fleet, they do not consider it the basic one.
- 3) The Littoral Combat Ship can be used to help ground combat forces.
- 4) The LCS is able to transmit data to other kinds of military transport.
- 5) The General Dynamics team is entrusted with the final designing of the LCS.
- 6) The General Dynamics team suggests that the LCS should have an absolutely new design that has no analogs in the world.
- 7) The new Littoral Combat Ship can assist in countering only naval mines.
- 8) Now this program costs more than \$30 billion. When completed, it will be worth twice as much.
- 9) The LCS is constructed to be used not farther than 100 miles from shore.

7. Fill in the gaps with the appropriate words.

- 1) The Littoral Combat Ship is optimized for ____ seas and operations within 100 miles of shore, still it is also ____ across the ocean.
- 2) The LCS will help to counter growing threats like ____ mines, quiet diesel ____, global piracy, and terrorists on small fast ____ boats.
- 3) The LCS will also perform intelligence gathering and scouting using ____ and ____, and offer ____ support capabilities.
- 4) The General Dynamics team is offering a futuristic but ____ high-speed trimaran based on Austal designs and experience.

- 5) The Lockheed Martin team is offering a high-speed _____ monohull.
- 6) Although the designs offered by the General Dynamics team have not _____ any speed records, they are considered to be very practical.
- 7) DID places recent _____ in context by detailing the teams, key time line _____, and contract _____ under the program to date.

8. Look at the following phrasal verbs and their meanings. Translate them into Russian.

- | | |
|-----------------------------------|---|
| keep after – continue to pursue; | keep on – continue despite difficulties; |
| keep back – conceal; | keep out – exclude; |
| keep off – stay away from; avoid; | keep up – be able to perform necessary actions. |

9. Read the following sentences and decide what phrasal verbs they require.

- 1) UAV robot aircraft, robotic UUV and USV vehicles will give these small ships the quick-replace adaptability they need to keep _____.
- 2) The government did not manage to keep _____ the state secret. So, now all other states know about its intentions.
- 3) The combatant kept _____ the enemy ship in order to come closer and destroy it.
- 4) Although the team failed to win the competition, it keeps _____ offering its design to other shipbuilding companies.
- 5) The skipper locked the door to keep _____ unwanted visitors.
- 6) Keep _____ the shore. There might be mines near it.

10. Translate from Russian into English.

- 1) Несмотря на то, что новый надводный боевой корабль был адаптирован для работы в пределах ста миль от берега, он также должен сохранять боеготовность на больших глубинах.
- 2) Новый тип судна используется американским флотом для ведения прибрежных боевых действий.
- 3) Прибрежные суда осуществляют сбор разведывательных данных, в этом им помогают вертолеты и беспилотные летательные аппараты.
- 4) Судно передает тактическую информацию морскому ведомству, другим судам, подводным лодкам и объединенным подразделениям.
- 5) Конструкторская команда предлагает футуристический и в то же время очень практичный дизайн трехкорпусного судна.
- 6) Судно позволяет отражать такие угрозы, как прибрежные мины, бесшумные дизельные субмарины, мировое пиратство и атаки штурмовых десантных катеров.

11. Discuss in pairs.

Discuss with your partner your own design of the new Littoral Combat Ship. Explain why the ship should possess the features that you are offering.

UNIT II. THE NAVY'S NEW SHIP DDG-1000

1. Answer the following questions.

- 1) Do warships play an important role in wartime?
- 2) When are warships especially necessary?

2. Read the new words.

beam – ширина судна;

navigational draft – эксплуатационная осадка;

displacement – водоизмещение;

aviation detachment – авиационный отряд;

surface and antiaircraft combat – надводные и противовоздушные боевые действия;

gunfire support – артиллерийская поддержка;

stealth – малозаметный;

tumblehome – завал борта;

flared hull – корпус с развалом бортов;

destroyer – эсминец;

missile – реактивный снаряд;

Peripheral Vertical Launch Systems – периферийный вертикальный стартовый комплекс;

missile magazine – ракетный погреб;

Tomahawk cruise missile – крылатая ракета «Томагавк».

3. Read the text.

The current version of the DDG-1000, which is being built by Northrop Grumman in Passacaglia, Miss., will be 600-ft long, have a beam of 80 ft, a navigational draft of 28 ft, and displacement 14,500 tons. The crew will consist of 142, and that includes an aviation detachment.

The ship is designed for surface and antiaircraft combat, and to provide naval gunfire support for land-based missions. The ship is stealthier than previous warships. There are no rotating radars, the superstructure is faceted with flat, slanted sides made of composite materials and there is little clutter on the decks. The ship is also low to the water, thanks to its tumblehome hull design. (A tumblehome hull is widest at the waterline and narrows as it goes up. Most ships have a flared hull in which the widest part is the top deck). The DDG's hull also has a pronounced wave-piercing bow. The exaggerated front is supposed to let it pass through waves rather than ride over them. This, in turn, should make the ship more stable. But some naval architects believe the tumblehome design is unstable and that when hit by waves from behind, the ship could pitch down, not have the energy to right itself, and roll over. The Navy, however, has tested the tumblehome hull and is proceeding with it.

The ship will also carry 80 missiles in 20 Peripheral Vertical Launch Systems (PVLS) lining the outer edge of the forward top deck. This prevents loss of the



entire store of missiles, and most likely the entire ship, if there was only a single missile magazine and it was hit. The PVLs, if hit, are designed to explode outward, away from the ship. The ships will be able to carry Sea Sparrow missiles for close in defense against airborne threats, SM-2 anti-aircraft missiles for planes in the 40 to 90 mile range, antisub missiles, and Tomahawk cruise missiles.

4. Suggest the English equivalents or find them in the text.

Настоящая (данная) версия, наземные военные операции, наклонные борты из композиционного материала, находиться низко к воде, сужаться кверху, способные разрезать волны, корабельный инженер, защита от воздушной угрозы, вращающийся радар, на ватерлинии, проходить сквозь волны, не иметь энергии для выравнивания, потеря всего запаса ч.-л.

5. Answer the questions.

- 1) What are the main characteristics of the DDG-1000?
- 2) What are the main functions of the ship?
- 3) What is the difference between the DDG-1000 and previous warships?
- 4) What is the tumblehome hull design?
- 5) How does a wave-piercing bow prevent the ship from rolling over?
- 6) What are the two opinions of naval architects about the stability of the ship?
- 7) What makes some naval architects believe that the ship of tumblehome hull design may roll over?
- 8) How does the design of the Peripheral Vertical Launch Systems prevent the loss of the entire ship?

6. Read the following statements and decide if they are correct or not. Prove your point of view.

- 1) The ship DDG-1000 is easier to notice than previous warships.
- 2) The exaggerated front of the ship is supposed to ride over waves and in such a way avoid rolling over.
- 3) The sides of the DDG-1000 are made of steel that reduces the risk of damage.
- 4) There is one opinion on the effectiveness of the tumblehome hull design.
- 5) After testing the tumblehome hull, the Navy gave up its production.
- 6) The Peripheral Vertical Launch Systems are placed outward the forward top deck.
- 7) The DDG-1000 is designed only for surface combat.
- 8) The tumblehome hull design enables the ship to be higher from the water than previous warships.
- 9) The crew of the ship includes also military air forces.

7. Fill in the gaps with the appropriate words.

- 1) The DDG-1000 will be 600-ft long, have a beam of 80 ft, a ____ draft of 28 ft, and displace 14,500 tons.

- 2) The ship is designed for surface and antiaircraft ____, and to provide naval gunfire support for land-based ____.
- 3) The ship is also low to the water, thanks to its ____ hull design.
- 4) Most ships have a flared hull in which the widest part is ____.
- 5) Some naval architects believe the tumblehome design is ____ and that when hit by waves from behind, the ship could pitch down, not have the energy to right itself, and ____.
- 6) The ship will also carry 80 missiles in 20 Peripheral Vertical ____ Systems (PVLS) lining the outer edge of the ____.
- 7) The ships will be able to carry Sea Sparrow missiles for close in defense against ____ threats.

8. Look at the following phrasal verbs and their meanings. Translate them into Russian.

give away – reveal;	give off – emit (smells, heat, fumes etc.)
give back – return;	give out – come to an end;
give in – surrender;	give up – abandon an attempt.

9. Read the following sentences and decide what phrasal verbs they require.

- 1) After testing the tumblehome hull, the Navy gave ____ its production.
- 2) The radiators give ____ lots of heat.
- 3) Promise not to give ____ my secret!
- 4) After a severe battle the enemy had to give ____ and retreat.
- 5) The supplies gave ____ halfway through the voyage. So the ship had to come to the port on its way.
- 6) Give me ____ back the money or I'll sue you.

10. Translate from Russian into English.

- 1) Настоящая версия судна DDG-1000 имеет следующие характеристики: длина – 200 футов, ширина – 80 футов, эксплуатационная осадка – 28 футов, водоизмещение – 14.500 тонн.
- 2) Судно предназначено для ведения надводных и противовоздушных боевых действий.
- 3) На судне нет вращающихся радаров, судовые надстройки окружены наклонными бортами из композиционного материала.
- 4) Некоторые корабельные инженеры считают, что завал бортов делает корабль неустойчивым, и в случае, если волна ударит сзади, корабль может накрениться и перевернуться.
- 5) Периферийный вертикальный стартовый комплекс расположен на внешней стороне верхней палубы, что предотвращает разрушение всего корабля в случае взрыва.

- 6) Самая широкая часть корпуса находится на ватерлинии, кверху она сужается.
- 7) Большинство военных судов имеют корпус с развалом бортов, в этом случае самая широкая часть судна – верхняя палуба.

11. Make up a dialogue.

You are naval architects. One of you is in favor of the tumblehome design, the other one is against it. Express your point and prove it with facts.

UNIT III. DESIGN FOR BIGGER AND FASTER RO-RO's

1. Answer the following questions.

- 1) Are warships necessary in time of peace?
- 2) Are there any differences between the modern warships and the warships of the World War II? What are they?

2. Read the new words.

average capacity – средняя вместимость;

lane metre – линейный метр (метр полосы шириной 2,5 м – единица измерения грузовой палубной вместимости судов типа Ро-Ро);

layout – расположение, планировка;

cargo lift – грузовой подъемник;

fixed ramp – пандус;

stern doors – кормовые ворота;

bow doors – носовые ворота;

drive-through principle – принцип сквозного проезда;

propulsion system – главная энергетическая установка;

pod – винтовой комплекс;

manoeuvring capabilities – маневренность;

tailor-made transport system – нестандартная система транспортировки.

3. Read the text.

There has been a clear trend towards larger and larger ro-ro-vessels in the short-sea segment. The average capacity has doubled from some 1,000 lane metres at the beginning of the 1970's to close to 2,000 lane metres.

Despite an increase in size, the efficiency of the vessels has improved too. The layout of the ro-ro-decks is a key issue. All lane metres should be available and easily reachable during the short port calls. The era of cargo lifts was passed years ago, now efficient arrangement and location of fixed and hoistable ramps and wide stern doors provide simultaneous loading of all ro-ro-decks.

Also the access to lower hold is important. In designs with both stern and bow doors, it is possible to arrange a drive-through principle for lower hold.

The ship designers still focus on improving both the layout of cargo holds and equipment and the vessels hull forms. New propulsion systems, such as pods, enable new possibilities to a more efficient usage of the space on board. They also improve the manoeuvring capabilities dramatically.

However, investments are also needed in ports, because insufficient infrastructure may ruin the earning potential of the most efficient ro-ro-vessel. Tailor-made transport systems with a limited number of fixed ports also put pressure on the port operators to reach optimum total efficiency.

4. Suggest the English equivalents or find them in the text.

Очевидная тенденция к чему-либо, увеличение в размере, ключевой вопрос, легкодоступный, короткая стоянка в порту, эффективное размещение груза, обеспечивать одновременную погрузку, доступ в трюм, сосредоточиться на улучшении, форма корпуса судна, эффективное использование пространства на борту, потенциал заработка, достигнуть оптимальной эффективности.

5. Answer the questions.

- 1) How has the average capacity of ro-ro-vessels changed since 1970's?
- 2) Why has the layout of the ro-ro-decks become a key issue?
- 3) What can nowadays provide simultaneous loading of all ro-ro-decks?
- 4) In what way can one arrange a drive-through principle?
- 5) What possibilities do new propulsion systems offer?
- 6) What can prevent port operators from reaching optimum total efficiency?
- 7) Name the main modifications of ro-ro-vessels over the last years.

6. Read the following statements and decide if they are correct or not. Prove your point of view.

- 1) Efficient usage of the space board became a key issue because of the trend towards smaller ro-ro-vessels.
- 2) During the short port calls it is especially important to have enough space for cargo-handling.
- 3) The design with both stern and bow doors enables to arrange a drive-through principle for lower hold.
- 4) The ship designers tell that the form of a hull is not of major importance nowadays.
- 5) Insufficient infrastructure cannot ruin the earning potential of the ro-ro-vessel, in case this vessel is efficient enough.
- 6) Tailor-made transport systems provide simultaneous loading of all ro-ro-decks.
- 7) Manoeuvring capabilities of the ro-ro-vessel depend mostly upon the propulsion system.
- 8) Cargo lifts are still widely used al over the world.
- 9) An increase in size decreases the efficiency of ro-ro-vessels.

7. Fill the gaps with the appropriate words.

- 1) The average capacity has _____ from 1,000 lane metres at the beginning of the 1970's to close to 2,000 lane metres.
- 2) In designs with both stern and bow doors, it is possible to arrange a _____ principle for lower hold.
- 3) All lane metres should be available and easily _____ during the short port calls.
- 4) New propulsion systems improve the _____ dramatically.
- 5) The era of _____ was passed years ago.
- 6) Now efficient arrangement and location of fixed and hoistable ramps and wide stern doors provide _____ loading of all ro-ro-decks.
- 7) _____ transport systems with a limited number of fixed ports may ruin the earning potential of the most efficient ro-ro-vessel.

8. Look at the following phrasal verbs and their meanings. Translate them into Russian.

- | | |
|--|----------------------|
| do away with – abolish; | do up – fasten; tie; |
| do down – speak badly of smb; | do in – kill; |
| do without – live or continue without having smth/smb. | |

9. Read the following sentences and decide what phrasal verbs they require.

- 1) If you want to arrange a drive-through principle for lower hold in the ro-ro-vessel, you won't do _____ stern and bow doors.
- 2) After fixed and hoistable ramps had been invented, most shipbuilding companies have done _____ cargo lifts.
- 3) The loading at the port was delayed for two hours. It was getting cold and the crew members were beginning to do _____ their jackets.
- 4) Nobody likes him because he is always doing people _____.
- 5) He threatened to do them _____, if they did not cooperate.

10. Translate from Russian into English.

- 1) Несмотря на очевидную тенденцию к увеличению размеров судов типа Ро-Ро, их эффективность не уменьшилась.
- 2) Сквозной проезд возможен только при наличии кормовых и носовых ворот на судне.
- 3) Новые виды энергетических установок улучшают маневренность судов и обеспечивают более эффективное использование пространства на судне.
- 4) Во время короткой стоянки в порту каждый линейный метр судна должен быть легкодоступен.
- 5) Корабельные инженеры большое внимание уделяют улучшению планировки судна, а также форме корпуса судна.
- 6) Инвестиции в кораблестроении оказывают большое влияние на эффективность работы грузовых судов и в случае недостатка средств могут сильно уменьшить потенциал дохода.

11. Present a monologue.

Speak about recent modifications of ro-ro-vessels. What are advantages and disadvantages of these modifications?

UNIT IV. THE HULL OF THE BULK CARRIER

1. Answer the following questions.

- 1) What are cargo ships used for?
- 2) What cargo handling facilities are used on cargo ships?
- 3) What are special requirements for dry cargo handling?

2. Read the new words.

single-hull – однокорпусный;
 bulbous bow – бульбообразный нос;
 block coefficient – коэффициент полноты водоизмещения;
 carrying capacity – грузоподъемность;
 deadweight tonnage – полная грузоподъемность;
 ballast tank – балластовая цистерна;
 ship's trim – положение судна;
 corner tank – бортовая подпалубная цистерна;
 angle of repose – угол предельного равновесия;
 side-to-side movement – поперечное перемещение;
 mild steel – низкоуглеродистая сталь;
 high-tensile steel – сталь повышенной прочности;
 tare weight – конструкционный вес;
 transverse reinforcement – поперечная арматура;
 longitudinal reinforcement – продольная арматура.

3. Read the text.

Bulkers are designed to be easy to build and to store cargo efficiently. To facilitate construction, bulkers are built with a single-hull. Also, while a bulbous bow allows a ship to move more efficiently through the water, designers lean towards simple vertical bows on larger ships. Full hulls, with large block coefficients, are almost universal, and as a result, bulkers are inherently slow.

Bulkers have a cross-section typical of most merchant ships. The upper and lower corners of the hold are used as ballast tanks, as is the double bottom area. The corner tanks are reinforced and serve another purpose besides controlling the ship's trim. Designers choose the angle of the corner tanks to be less than that of the angle of repose of the anticipated cargoes. This greatly reduces side-to-side movement, or "shifting," of cargo which can endanger the ship.

The double bottoms are also subject to design constraints. The primary concern is that they be high enough to allow the passage of pipes and cables. These areas must also be roomy enough to allow people safe access to perform surveys and

maintenance. On the other hand, concerns of excess weight and wasted volume keep the double bottoms very tight spaces.

Bulker hulls are made of steel, usually mild steel. Some manufacturers have preferred high-tensile steel recently in order to reduce the tare weight. However, the use of high-tensile steel for longitudinal and transverse reinforcements can reduce the hull's resistance to corrosion.

4. Suggest the English equivalents or find them in the text.

Облегчать конструкцию, быть медленным по определению, быть типичным для большинства судов, склоняться к чему-л., служить цели, подвергаться расчетным ограничениям, первоочередная задача, обеспечить безопасный доступ к чему-л., избыточная масса, коррозионная стойкость, ожидаемый груз, производить исследования и ремонт.

5. Answer the questions.

- 1) In what way are bulk carriers designed?
- 2) Why are bulkers slow?
- 3) How are upper and lower corners of the hold used?
- 4) What for were corner tanks reinforced?
- 5) How do designers achieve the reduction of side-to-side movement?
- 6) What are the main requirements for the double bottom design?
- 7) What kinds of steel are bulker hulls made of? What is the difference between them?

6. Read the following statements and decide if they are correct or not. Prove your point of view.

- 1) A single-hull design of the bulker enables to facilitate the construction.
- 2) The only function of the corner tanks is to control the ship's trim.
- 3) The double bottoms should be tight enough to hold pipes and cables.
- 4) Mild steel is used to reduce the tare weight.
- 5) The angle of repose of the anticipated cargoes should be more than the angle of the corner tanks.
- 6) The double bottoms should be roomy enough for people to work there.
- 7) Designers reject the idea of usage of simple vertical bows on larger ships, because they consider a bulbous bow to move more efficiently.
- 8) Designers do not concern about wasted volume in the double bottoms, because a lot of space is necessary there for pipes and cables.
- 9) The design of bulkers provides efficient cargo storage.

7. Fill the gaps with the appropriate words.

- 1) Designers lean towards simple _____ bows on larger ships, though they find _____ bow more efficient.
- 2) Bulkers have a _____ typical of most merchant ships.

- 3) The upper and lower corners of the hold are used as ____.
- 4) The corner tanks are reinforced and serve another purpose besides ____ the ship's trim.
- 5) The properly chosen angle of the corner tanks reduces ____ movement, or ____ of cargo which can endanger the ship.
- 6) The double must be roomy enough to allow people ____ to perform surveys and maintenance.
- 7) Some manufacturers have preferred ____ steel recently in order to reduce the ____ weight.

8. Look at the following phrasal verbs and their meanings. Translate them into Russian.

- | | |
|-----------------------------------|---|
| call for – need; | call out – order to come to smb's help; |
| call in – visit briefly; | call off – cancel. |
| call up – order to join the army; | |

9. Read the following sentences and decide what phrasal verbs they require.

- 1) The maintenance staff was called ____ to repair the breakage.
- 2) The situation calls ____ immediate action.
- 3) The voyage was called ____ because of the severe storm.
- 4) Thousands of young men were called ____ during World War I.
- 5) The skipper called ____ to see look if all the arrangements had been made properly.

10. Translate from Russian into English.

- 1) Хотя бульбообразный нос позволяет сухогрузу двигаться быстрее, корабельные инженеры отдают предпочтение обычному вертикальному носу.
- 2) Внешний вид сухогруза в поперечном сечении является типичным для большинства торговых судов.
- 3) Инженеры делают угол бортовых подпалубных цистерн меньше угла предельного равновесия ожидаемого груза. Это уменьшает поперечное опасное для судна перемещение груза.
- 4) Двойное дно также подвергается расчетным ограничениям.
- 5) С недавних пор некоторые кораблестроительные компании начали изготавливать корпус сухогруза из стали повышенной прочности с целью уменьшения конструкционного веса.
- 6) Использование стали повышенной прочности для изготовления поперечной и продольной арматуры часто приводит к коррозии.

11. Discuss in pairs.

Discuss with your partner the conditions that make cargo handling in the ship easier? Harder? What would you offer to make it more effective?

UNIT V. OIL TANKERS SAFETY

1. Answer the following questions.

- 1) What are tankers used for?
- 2) What cargo handling facilities are used on tankers? What are the dangers of tanker usage?

2. Read the new words.

floating pipeline – плавучий трубопровод;
 fluctuations – колебания, изменения;
 traded commodity – продаваемый товар;
 honeycomb construction – сотовая конструкция;
 crude carrier – нефтеналивное судно;
 discharge port – разгрузочное отверстие;
 waxy crude – парафинистая нефть;
 heavy crude – необработанная нефть;
 blanket gas – пластовый газ;
 stainless steel – нержавеющая сталь.

3. Read the text.

The tanker fleet is a highly adaptable, responsive floating pipeline which is capable of adjusting to considerable fluctuations in demand, as cold weather bites or industrial capacity increases. Ships can be switched to add or reduce capacity, or take advantage of price fluctuations, almost at a moment's notice. Oil being a traded commodity, the adaptability of tankers is highly important in this respect.

Tankers are enormously strong vessels, built with a honeycomb construction, a modern crude carrier typically having fifteen cargo tanks protected by a double hull structure around the sides and bottom, in which sea water ballast can be carried for the empty voyage after the oil cargo has been delivered. On such modern double hulled tankers, the oil and ballast remain separate, which greatly reduces the risk of pollution.

A tanker will normally be loaded by shore equipment, but will use her own powerful pumps to empty herself at the discharge ports. Crude oil comes in many forms, ranging from those that are light and free running, to heavy and waxy crude which require heating so they can be pumped freely. Most hydrocarbons are toxic and flammable and it is modern safety practice to keep the tanks filled with a blanket of inert gas.

Specialist tankers include vessels which are configured to carry as many as fifty different grades of chemicals and oils, each with their own separate pumping systems and capable of coping with cargoes that need to be shipped hot, cold or under a blanket of nitrogen. There are ships built of stainless steel for the carriage of acids, others with sophisticated coatings for the carriage of edible oils and wine.

Tankers have had a bad press, and are associated with oil pollution, but the facts are very different, with pollution steadily reducing year on year, despite the steady increase in the quantity of oil carried by sea.

4. Suggest the English equivalents or find them in the text.

Легкоадаптируемый, колебания спроса, воспользоваться скачком цен, в связи с этим, двойной корпус, снижать риск загрязнения, варьироваться, токсичный и легковоспламеняющийся, современная техника безопасности, держать заполненным, способный справляться с грузами, иметь неприятные отзывы в прессе, по сравнению с предыдущим годом.

5. Answer the questions.

- 1) How is the adaptability of tankers demonstrated?
- 2) What is the typical construction of the tanker?
- 3) Why do on modern double hulled tankers the oil and ballast remain separate?
- 4) How can the tanker empty herself?
- 5) In what forms may crude oil come?
- 6) What are specialist tankers?
- 7) Why have tankers had a bad press?

6. Read the following statements and decide if they are correct or not. Prove your point of view.

- 1) A tanker can be unloaded only with the help of shore equipment.
- 2) Specialist tankers are capable of carrying cargoes that need to be shipped hot, cold or under a blanket of nitrogen.
- 3) Oil pollution is gradually decreasing.
- 4) On modern double hulled tankers, the oil and ballast are carried together in order to reduce the risk of pollution.
- 5) Most hydrocarbons are toxic and flammable, so they are always remain separate from a blanket of inert gas.
- 6) Tankers have been never associated with oil pollution, because press has always been too bad to notice it.
- 7) The tanker fleet always adjusts to price fluctuations.
- 8) After the oil cargo has been delivered, sea water ballast can be carried for the empty voyage.

7. Fill the gaps with the appropriate words.

- 1) The tanker fleet is a highly adaptable, responsive _____ pipeline which is capable of adjusting to considerable _____ in demand.
- 2) On modern double hulled tankers, the oil and ballast remain separate, which greatly reduces the risk of _____.
- 3) Oil is a traded _____ that is why the adaptability of tankers is highly important in this respect.

- 4) A tanker will normally be loaded by shore equipment, but will use her own powerful _____ to empty herself at the _____ ports
- 5) Tankers have had a bad press, and are associated with _____.
- 6) There are ships built of _____ steel for the carriage of acids, others with sophisticated coatings for the carriage of _____ and _____.
- 7) Tankers are built with a _____ construction, a modern crude carrier typically having _____ cargo tanks protected by a double hull structure around the sides and _____.

8. Look at the following phrasal verbs and their meanings. Translate them into Russian.

fall apart – come to pieces;

fall back on – turn to smb/smith for help when other plans have failed;

fall into – be divided into (categories);

fall in – collapse;

fall on – attack;

fall through – fail to be completed.

9. Read the following sentences and decide what phrasal verbs they require.

- 1) When the crew runs out of fuel, it had to back _____ their reserves.
- 2) This tanker is so old that it seems to be about to fall _____.
- 3) I'm afraid the roof will fall _____, if an earthquake hits the area.
- 4) The raider fell _____ the policeman.
- 5) This ship falls _____ the category of tankers.
- 6) The company's plans fell _____ due to lack of money.

10. Translate from Russian into English.

- 1) Танкеры – это очень крепкие суда, имеющие ячеистую конструкцию, разделенную на 50 цистерн и защищенную двойным корпусом.
- 2) Загружают танкер обычно с помощью грузового оборудования, разгружается же он самостоятельно через специальные разгрузочные отверстия.
- 3) О танкерах очень плохо отзывались в прессе, и теперь они ассоциируются у людей с загрязнением нефтью окружающей среды.
- 4) Суда могут приспособливаться к изменениям спроса либо получать выгоду от скачков цен.
- 5) Танкеры могут перевозить до 50-ти различных видов химических и нефтепродуктов, причем для каждого из них предназначены отдельные грузовые системы
- 6) На современных двухкорпусных танкерах нефть и балласт перевозятся отдельно, таким образом, снижается риск загрязнения окружающей среды.

11. Present a monologue.

Speak about the negative role of ships in environmental pollution. What can be done to reduce it?

TEST

1. Match the words.

I.

- | | |
|---------|--|
| 1) UAV | a) периферийный вертикальный стартовый комплекс |
| 2) UUV | b) разведка на территории страны |
| 3) USV | c) беспилотный летательный аппарат |
| 4) DID | d) автоматически управляемое подводное транспортное средство |
| 5) PVLS | e) универсальное специализированное транспортное средство |

II.

- | | |
|----------------|------------------|
| 1) deployable | a) малозаметный |
| 2) littoral | b) парафинистый |
| 3) stealth | c) боеготовый |
| 4) tailor-made | d) нержавеющей |
| 5) average | e) нестандартный |
| 6) waxy | f) приморский |
| 7) stainless | g) средний |

III.

- | | |
|------------------------|-----------------------------|
| 1) combatant | a) эсминец |
| 2) aviation detachment | b) надводный боевой корабль |
| 3) destroyer | c) грузовой подъемник |
| 4) fixed ramp | d) авиационный отряд |
| 5) cargo lift | e) положение судна |
| 6) lower hold | f) нефтеналивное судно |
| 7) ship's trim | g) плавучий трубопровод |
| 8) crude carrier | h) трюм |
| 9) floating pipeline | i) пандус |

2. Make up word combinations.

I.

- | | |
|------------------|-----------------|
| 1) littoral | a) threats |
| 2) growing | b) boats |
| 3) quiet | c) information |
| 4) global | d) submarine |
| 5) attack | e) piracy |
| 6) ground | f) warfare |
| 7) tactical | g) adaptability |
| 8) quick-replace | h) combat |

II.

- | | |
|------------------|------------------|
| 1) current | a) coating |
| 2) land-based | b) system |
| 3) drive-through | c) reinforcement |
| 4) propulsion | d) principle |
| 5) primary | e) version |
| 6) transverse | f) missions |
| 7) sophisticated | g) pollution |
| 8) oil | h) concern |

3. Fill in the appropriate prepositions from the list below.

off, out, away with, in, apart, into, in, after, off, back.

1. The match was called ____ because of the bad weather.
2. This novel falls ____ the category of historical adventure.
3. Most countries have done ____ capital punishment.
4. The police kept ____ the escaped prisoners until they caught them.
5. All fire-fighters were called ____ to save the burning building.
6. Keep ____ the benches. The paint is wet.
7. How did she manage to keep ____ her true feelings?
8. The book is so old that it's falling ____.
9. He finally gave ____ and admitted he was wrong.
10. She called ____ last Monday to see our new house.

KEYS

1. Match the words.

- I. 1) c; 2) d; 3) e; 4) b; 5) a.
II. 1) c; 2) b; 3) a; 4) e; 5) g; 6) b; 7) d.
III. 1) b; 2) d; 3) a; 4) i; 5) c; 6) h; 7) e; 8) f; 9) g.

2. Make up word combinations.

- I. 1) f; 2) a; 3) d; 4) e; 5) b; 6) h; 7) c; 8) g.
II. 1) e; 2) f; 3) d; 4) b; 5) h; 6) c; 7) a; 8) g.

3. Choose the appropriate prepositions.

- | | |
|---------------|-----------|
| 1) off; | 6) off; |
| 2) into; | 7) back; |
| 3) away with; | 8) apart; |
| 4) after; | 9) in; |
| 5) out; | 10) in. |

БИБЛИОГРАФИЧЕСКИЙ СПИСОК

1. Новый Большой англо-русский словарь: В 3 т. / Ю.Д. Апресян, Э.М. Медникова., А.В. Петрова. и др. – М.: Рус. яз., 2001. – 2496 с.
2. Evans Virginia. FCE Use of English. – Newbury: Express Publishing, 2001. – 255 p.
3. Longman Dictionary of Contemporary English. 3rd Ed. with New Words Supplement. – Harlow, Essex: Longman, 2001. – 1668 p.
4. Machine Design (2008, March). The Navy's New Ships. Retrieved March 1, 2009 from <http://machinedesign.com/article/the-navy-s-new-ships-0306>.
5. Scandinavian Shipping Gazette (2006, Oct). Design for bigger and faster ro-ros. Retrieved March 1, 2009 from <http://www.shipgaz.com/old/magazine>

Заказ № от «___» _____ 2009
Изд-во СевНТУ

Тираж