Министерство образования и науки Российской Федерации
Федеральное государственное бюджетное образовательное учреждение
высшего профессионального образования
«Амурский государственный университет»

Кафедра иностранных языков №1
(наименование кафедры)

УЧЕБНО-МЕТОДИЧЕСКИЙ КОМПЛЕКС ДИСЦИПЛИНЫ

Иностранный язык(спец.главы«Технический ин.язык»)
(наименование дисциплины)

Основной образовательной программы по направлению подготовки (специальности)
220301.65 «Автоматизация технологических процессов и производств (по отраслям)»
(код и наименование направления (специальности))

Благовещенск 2011

УМКД разработан ст. преподавателем Смирновой Ольгой Геннадьевной

(степень, звание, фамилия, имя, отчество разработчиков)

_____

_____

Рассмотрен и рекомендован на заседании кафедры

Протокол заседания кафедры от «____» _____201__г. №_____

Зав. кафедрой _____/_____/

(подпись) (И. О. Фамилия)

УТВЕРЖДЕН

Протокол заседания УМСС 220301.65 «Автоматизация технологических процессов и производств (по отраслям)»

(указывается название специальности (направления подготовки))

от «___»_____201__г. №_____

Председатель УМСС _____/_____/

(подпись) (И. О. Фамилия)

СОДЕРЖАНИЕ

I. РАБОЧАЯ ПРОГРАММА УЧЕБНОЙ ДИСЦИПЛИНЫ

1. ЦЕЛИ И ЗАДАЧИ ОСВОЕНИЯ ДИСЦИПЛИНЫ

Целью изучения дисциплины является умение соотносить языковые средства с конкретными сферами, ситуациями, условиями и задачами общения, уровень которого на отдельных этапах подготовки позволяет использовать иностранный язык практически как в устной и письменной коммуникации, так и для самообразования.

Задачами дисциплины являются: изучение нового лексического материала, необходимого в профессиональном общении; развитие навыков публичной речи (сообщение, доклад, дискуссия); развитие навыков чтения специальной литературы с целью получения информации; реферирование, аннотирование и перевод литературы по специальности; развитие основных навыков письма для подготовки публикаций; воспитательные задачи – расширение кругозора студентов, повышение общей культуры, привитие уважения к культуре, духовным ценностям стран изучаемого языка.

2. МЕСТО ДИСЦИПЛИНЫ В СТРУКТУРЕ ООП ВПО

Дисциплина «Иностранный язык» (спец. главы «Технический иностранный язык») относится к блоку 450 ФТД (Факультативы ГОС ВПО).

Общая трудоемкость изучения данной дисциплины составляет 36 час. (18 час. аудиторных занятий, 18 час. самостоятельной работы).

Предшествующими этапами в освоении дисциплины «Иностранный язык» (спец. главы «Технический иностранный язык») являются блоки Б.1.Б.3.ГСЭ Б.1 (Базовая часть ГОС ВПО) «Иностранный язык», а также Б.1.В.2 «Профессиональный иностранный язык».

3. ПЕРЕЧЕНЬ ОСНОВНЫХ УМЕНИЙ И НАВЫКОВ, ПРИОБРЕТАЕМЫХ СТУДЕНТАМИ

По окончании обучения студент должен владеть идиоматически ограниченной речью, а также освоить стиль нейтрального научного изложения:

- понимать устную (монологическую и диалогическую) речь на специальные темы;
- активно владеть наиболее употребительной (базовой) грамматикой и основными грамматическими явлениями, характерными для профессиональной речи;
- знать лексику, представляющую нейтральный научный стиль, а также основную терминологию своей широкой и узкой специальности;
- читать и понимать со словарем специальную литературу по широкому и узкому профилю специальности;
- владеть основами публичной речи – делать сообщения, доклады (с предварительной подготовкой);
- участвовать в обсуждении тем, связанных со специальностью (задавать вопросы и отвечать на вопросы);
- владеть основными навыками письма, необходимыми для подготовки публикаций и тезисов;
- владеть основными приемами аннотирования, реферирования и перевода литературы по специальности.

4. СТРУКТУРА И СОДЕРЖАНИЕ ДИСЦИПЛИНЫ

В соответствии с действующими учебными планами на полный курс обучения иностранному языку для дневного отделения специальности 220301.65 отводится 18 часов аудиторных занятий и 18 часов самостоятельной работы. Курс изучается в течение 5 семестра. Курс обучения заканчивается зачетом.

Таблица 1 – Структура дисциплины

Раздел Дисциплины	Се-местр	Не-деля се-местра	Виды учебной работы, включая самостоятельную работу студентов и трудоемкость (в часах)	Формы текущего контроля успеваемости (по неделям семестра) Форма промежуточного контроля успеваемости (по неделям семестра)

New Energy from Old Sources. Wind and Solar Energy.	5	1-5	Пр.з 5	СРС 5	Словарный диктант Эссе Проект
Future Sources of Energy. Renewable Energy Industry	5	6-10	Пр.з 5	СРС 5	Монолог - сообщение Ролевой пересказ Проект
Automation in Industry. Efficiency in Engineering Operations	5	11-14	Пр.з 4	СРС 4	Монолог Презентация Проект
Engineering as a Profession	5	15-18	Пр.з 4	СРС 4	Монолог Подготовка доклада на студенческую научную конференцию **Зачет**
	5	18	18	18	36 **Зачет**

5. СОДЕРЖАНИЕ ДИСЦИПЛИНЫ И ОБРАЗОВАТЕЛЬНЫЕ ТЕХНОЛОГИИ

Таблица 2 – Содержание дисциплины

Семестр	Модуль	Тема и содержание модуля	Часы

V	I	1. Устная тема: *New Energy from Old Sources. Wind and Solar Energy.* Международные конференции и повседневные ситуации, связанные с их проведением. 2. Текстовый материал: научно-техническая литература по профилю специальности. 3. Работа с текстом: работа с терминами, общенаучной и др. лексикой. 4. Аудирование: по теме модуля	10
	II	1. Устная тема: *Future Sources of Energy. Renewable Energy Industry.* Международные конференции и повседневные ситуации, связанные с их проведением. 2. Текстовый материал: научно-техническая литература по профилю специальности. 3. Работа с текстом: Аннотирование. Реферирование. Разнообразные виды работ с текстами по специальности. Работа с терминами, общенаучной и др. лексикой. 4. Аудирование: по теме модуля	8
	III	1. Устная тема: *Automation in Industry. Efficiency in Engineering Operations.* Международные конференции и повседневные ситуации, связанные с их проведением. 2. Текстовый материал: научно-техническая литература по профилю специальности. 3. Работа с текстом: Аннотирование. Реферирование. Разнообразные виды работ с текстами по специальности. Работа с терминами, общенаучной и др. лексикой. 4. Аудирование: по теме модуля	8

	IV	1. Устная тема: *Engineering as a Profession.* 2. Текстовый материал: научно-техническая литература по профилю специальности. 3. Работа с текстом: Аннотирование. Реферирование. Разнообразные виды работ с текстами по специальности. Работа с терминами, общенаучной и др. лексикой. 4. Аудирование: по теме модуля.	10
Всего часов по V семестру			36

6.ОБРАЗОВАТЕЛЬНЫЕ ТЕХНОЛОГИИ

В качестве приоритетных образовательных технологий и методов, адекватных компетентностной модели кафедрой рассматриваются следующие:

Технология стимуляции реального общения на иностранном языке – студенты должны уметь решать реальные коммуникативные задачи, которые возникают на уроке ИЯ в процессе реального общения «студент- преподаватель», «преподаватель – студент», «преподаватель - студенты», «студенты-студент», «студент-студенты» (поздороваться, попрощаться, поблагодарить за помощь (урок), поздравить с праздником, уточнить информацию и т.п.)

Групповой и индивидуальный методы работы со студентами. Групповой метод обеспечивает участие в работе каждого студента и предполагает вариативность участия в работе студентов с различной степенью речевой активности и инициативности. Индивидуальный метод заключается в раскрытии личностных возможностей обучающихся: их качеств, уровня языковой подготовки, умения самостоятельно включаться в процесс общения, управлять ситуацией общения.

Технология проблемного обучения и воспитания – направлена на обеспечение целостного многоаспектного развития личностных качеств студентов; опирается на принцип научности, креативности, вариативности; усиливает мотивацию к познавательной деятельности, способствует глубокому пониманию.

Информационно-компьютерные технологии реализуются в дидактических схемах компьютерного обучения на основе диалога «обучаемый-компьютер» с помощью

различного вида обучающих программ (информационных, тренинговых, контролирующих и др.)

Технологии сотрудничества – современный подход к обучению иностранному языку подчеркивает важность сотрудничества студентов и преподавателя и их взаимодействия как мотивирующего фактора.

Тестовые технологии направлены на определение не только ЗУНов, но и компетенции, т.е. предполагает не только выбор правильных вариантов ответа, а включает в себя творческие задания (анализ текста и т.п.) и могут проводиться на всех этапах обучения и служить для промежуточного и итогового контроля.

Диалоговые технологии - форма организации и метод обучении, основанный на диалогическом мышлении во взаимодействующих дидактических системах

Дискуссия – один из эффективных интерактивных методов познания и нахождения истины (дискуссия диспут, прогрессивная дискуссия, дискуссия – соревнование)

Технология аудиторной дискуссии (круглого стола, конференции, собрания) – коллективное обсуждение какого-либо вопроса, проблемы или сопоставления информации, идей, мнений предложений. Цели дискуссий – обучение, тренинг, диагностика, изменение установок, стимулирование творчества. *Темы дискуссий – проблемы морали, семейных отношений, политики, науки техники и др*.

Игровые технологии – дидактические системы применения различных игр, формирующих умения решать задачи выбора на основе альтернативных вариантов.

Интеллектуальная игра - средство, формирующее не только интеллектуальное развитие, но и коммуникативные умения, и навыки, личностные и профессиональные качества человека. Она ускоряет процесс адаптации и социальной акклиматизации; выявляет лидеров и аутсайдеров; помогает обучить правилам поведения. Она разрешает трудности межличностного и межгруппового общения; создает благоприятный психологический, в ней разрешаются какие-либо жизненные проблемы, закрепляются свойства, качества, состояния, умения, навыки, способности, необходимые личности для выполнения социальных, творческих и профессиональных функций. Диапазон интеллектуальных игр широк: это уроки-викторины: “Quiz” (прототипы российских игр «Что? Где? Когда?», «Брейн - ринг», «Своя игра» и «Поле чудес»).

Ролевая игра - это речевая, игровая и учебная деятельности одновременно; самая точная модель общения, так как она подражает действительности в самых существенных чертах и в ней переплетается речевое и неречевое поведение партнеров. Ролевая игра способствует расширению сферы общения, предполагает предварительное усвоение

языкового материала в тренировочных упражнениях и развитие навыков, которые позволят учащимся сосредоточиться на содержательной стороне высказывания.

Контролируемые игры на основе диалога или текста. В первом случае обучаемые знакомятся с базовым диалогом и отрабатывают его: обсуждают содержание диалога, прорабатывают нормы речевого этикета и необходимую лексику; составляют свой вариант диалога. Вторым видом контролируемой ролевой игры является игра на основе текста. В этом случае после знакомства с текстом предлагается студентам сыграть роль какого-нибудь персонажа из текста, а другим - взять у него интервью. Студенты - репортеры могут задавать не только те вопросы, ответы на которые есть в тексте, но и любые другие, проявив свою фантазию. Задача таких игр - достижение намеченных целей путем «погружения» в среду, приближенную к условиям реального функционирования рыночной экономики.

Проектная технология обучения в условиях компетентностного подхода - «позволяет формировать некоторые личностные качества, которые лишь развиваются в деятельности и не усваиваются вербально». Предлагается использовать различные варианты индивидуальных и групповых проектов и путей их реализации. Готовясь к студенческой научной конференции и работая над межпредметными проектами, студенты овладевают технологией проектов в деятельности: определяют цели, задачи, гипотезу исследования, планируют этапы своей деятельности и обсуждение возможностей использования опыта в других ситуациях. В результате, проектная методика позволяет создать естественную среду для формирования компетентностей будущего специалиста.

7.ОЦЕНОЧНЫЕ СРЕДСТВА ДЛЯ ТЕКУЩЕГО КОНТРОЛЯ УСПЕВАЕМОСТИ, ПРОМЕЖУТОЧНОЙ АТТЕСТАЦИИ ПО ИТОГАМ ОСВОЕНИЯ ДИСЦИПЛИНЫ И УЧЕБНО-МЕТОДИЧЕСКОЕ ОБЕСПЕЧЕНИЕ

В рамках данной Программы используется традиционная система контроля, которая включает в себя:

текущий контроль осуществляется в течение семестра в устной и письменной форме в виде контрольных и устных опросов;

промежуточный контроль проводится в виде проектов. Объектом контроля являются коммуникативные умения во всех видах речевой деятельности (аудирование, говорение, чтение, письмо), ограниченные тематикой и проблематикой изучаемых разделов курса;

итоговый контроль проводится в виде зачета за весь курс обучения английскому профессиональному языку. Объектом контроля является достижение заданного Программой уровня владения иноязычной коммуникативной компетенцией.

7.1.Виды контроля (по способу выявления формируемых компетенций)

Устный опрос

Достоинства: позволяет оценить знания и кругозор студента, умение логически построить ответ, владение монологической речью и иные коммуникативные навыки, обладает большими возможностями воспитательного воздействия преподавателя.

Письменные работы

Достоинства: экономия времени преподавателя; возможность поставить всех студентов в одинаковые условия, объективно оценить ответы при отсутствии помощи преподавателя, проверить обоснованность оценки; субъективности при оценке подготовки студента.

Контроль с помощью технических средств и информационных систем

Достоинства: оперативное получение объективной информации об усвоении студентами контролируемого материала, возможность детально и персонифицировано представить эту информацию преподавателю, формирования и накопления интегральных (рейтинговых) оценок достижений студентов по всем дисциплинам и модулям образовательной программы, привитие практических умений и навыков работы с информационными ресурсами и средствами, возможность самоконтроля и мотивации студентов в процессе самостоятельной работы.

7.2 Формы контроля

Собеседование - специальная беседа преподавателя со студентом на темы, связанные с изучаемой дисциплиной, рассчитанная на выяснение объема знаний студента по разделу, теме модуля, проблеме и т.п.;

контрольная работа состоит из небольшого количества средних по трудности вопросов, задач или заданий, требующих поиска обоснованного ответа. Может занимать часть или полное учебное занятие с разбором правильных решений на следующем занятии. Рекомендуемая частота проведения – не менее одной перед каждой промежуточной аттестацией;

эссе одна из форм письменных работ, наиболее эффективная при формировании универсальных компетенций выпускника. Небольшая по объему самостоятельная письменная работа на тему, предложенную преподавателем. Цель эссе состоит в развитии навыков самостоятельного творческого мышления и письменного изложения собственных умозаключений. Содержит изложение сути поставленной проблемы, самостоятельно

проведенный анализ этой проблемы с использованием концепций и аналитического инструментария соответствующей дисциплины, выводы, обобщающие авторскую позицию по поставленной проблеме;

реферат - краткое изложение содержания научных трудов, литературы по определенной научной теме. Объем реферата может достигать 10-15 стр.; время, отводимое на его подготовку – от 2 недель до месяца. Подготовка реферата подразумевает самостоятельное изучение студентом нескольких литературных источников (монографий, научных статей и т.д.) по определённой теме, не рассматриваемой подробно на лекции, систематизацию материала и краткое его изложение. Цель написания реферата – привитие студенту навыков краткого и лаконичного представления собранных материалов и фактов в соответствии с требованиями, предъявляемыми к научным отчетам, обзорам и статьям;

тест - процедура, ориентирующая испытуемого на выполнение какого-нибудь практического действия (практические испытания);

зачет представляет собой форму промежуточной аттестации студента, определяемую учебным планом подготовки по направлению ВПО.

7.3 Темы эссе

1.Альтернативные источники энергии.

2. Автоматизация технологических процессов и производств.

3. Промышленная электроника.

4. Электронная и преобразовательная техника.

7.4 Темы рефератов

1. Энергетика: перспективы развития.

2. Устройства автоматической защиты.

3. Устройства автоматического управления.

4. Приборы и устройства промышленной электроники.

7.5 Требования к уровню подготовки студентов по окончании обучения

Основными целями обучения иностранным языкам в неязыковом вузе является формирование/совершенствование иноязычных коммуникативных умений студентов. Исходя из этого, в качестве требований, предъявляемых к студенту по окончании курса

обучения иностранному языку, выдвигаются требования владения именно коммуникативными умениями. Таким образом, по окончании курса обучения

иностранному языку в неязыковом вузе обучающиеся должны уметь в рамках обозначенной проблематики общения:

- в области аудирования:

воспринимать на слух и понимать основное содержание несложных аутентичных общественно-политических, публицистических (медийных) и прагматических текстов, относящихся к различным типам речи (сообщение, рассказ), а также выделять в них значимую/запрашиваемую информацию

- в области чтения:

понимать основное содержание несложных аутентичных общественно-политических, публицистических и прагматических текстов (информационных буклетов, брошюр/проспектов), научно-популярных и научных текстов, блогов/веб-сайтов; детально понимать общественно-политические, публицистические (медийные) тексты, а также письма личного характера; выделять значимую/запрашиваемую информацию из прагматических текстов справочно-информационного и рекламного характера

- в области говорения:

начинать, вести/поддерживать и заканчивать диалог-расспрос об увиденном, прочитанном, диалог-обмен мнениями и диалог-интервью/собеседование при приеме на работу, соблюдая нормы речевого этикета, при необходимости используя стратегии восстановления сбоя в процессе коммуникации (переспрос, перефразирование и др.); расспрашивать собеседника, задавать вопросы и отвечать на них, высказывать свое мнение, просьбу, отвечать на предложение собеседника (принятие предложения или отказ); делать сообщения и выстраивать монолог-описание, монолог-повествование и монолог-рассуждение

- в области письма:

заполнять формуляры и бланки прагматического характера; вести запись основных мыслей и фактов (из аудиотекстов и текстов для чтения), а также запись тезисов устного выступления/письменного доклада по изучаемой проблематике; поддерживать контакты при помощи электронной почты (писать электронные письма личного характера); оформлять Curriculum Vitae/Resume и сопроводительное письмо, необходимые при приеме на работу, выполнять письменные проектные задания (письменное оформление презентаций, информационных буклетов, рекламных листовок, коллажей, постеров, стенных газет и т.д.).

7.6 Примерные задания для самоконтроля

Примерное содержание теста

1 Pressing… allowing

Press the control lever.

This opens the control valve.

This allows compressed air to enter the drill.

2 … forcing…

The air passes through the valve and down the return chamber to the underside of the piston.

The pressure forces the piston to rise up the cylinder.

3 As … which

The piston rises.

The piston covers the exhaust.

This prevents the air from escaping.

4 At the same time … which

The rising piston starts to compress the air.

The air is trapped above it.

5 …admitting … and closing …

The increase in pressure forces the operating valve to open.

This admits air to the top of the chamber.

This closes off air in the return chamber.

6 As …

The pressure in the chamber increases to 620 kPa.

The pressure forces the piston to strike the chisel.

7 When … and …

The piston passes the exhaust.

The air is released into the atmosphere.

The valve closes.

8 … which … and…

This opens the return chamber again.

This allows the air to pass to the underside of the piston.

This restarts the cycle.

Примерное содержание карточки

Vocabulary:

1.Процесс сгорания

2.Теплопроизводительность

3.Важная роль

4.Технические усовершенствования

5.Растущая важность

6.Поощрять

7.Добыча и переработка газа

8.Приведёт к

9.Стратегия исследования и разработки

10.Электростанция, работающая на традиционных источниках энергии

11.Практический коэффициент полезного действия

12.Важная роль

13.Более низкие цены на топливо

14.Связаны с

15.Природные ресурсы

16.Признание

Темы сообщений, презентаций и дебатов

1.Автоматический контроль.

2.Полупроводниковые приборы.

3.Эффективность автоматизации.

4.Автоматические системы (структура, свойства и т.д.).

5.Принципы автоматики.

6.Контрольные измерительные приборы и автоматы.

8.УЧЕБНО-МЕТОДИЧЕСКОЕ И ИНФОРМАЦИОННОЕ ОБЕСПЕЧЕНИЕ ДИСЦИПЛИНЫ

8.1 Основная литература:

1.Федорищева, Е. А. Энергетика : проблемы и перспективы [Текст] : учеб. пособие по английскому языку для технических вузов / Е. А. Федорищева. – М. : Высш. шк., 2008.
2. Кушникова, Г. К. Electrical Power. Обучение профессионально - ориентированному чтению [Текст] : учеб. пособие / Г. К. Кушникова. – М. : Флинта : Наука, 2007.

8.2 Дополнительная литература:

1. Glendinning, E. H. Oxford English for Electrical and Mechanical Engineering [Text] : Student’s Book / E. H. Glendinning, N. Glendinning. – Oxford : Oxford University Press, 2002.
2. Агабекян, И. П. Английский для инженеров [Текст] : учеб. пособие / И. П. Агабекян, П. И. Коваленко. – Ростов н/Д : Феникс, 2009.

Периодические издания:

1. Scientific American
2. Energy Policy

3. Ieee Transactions on Power Systems
4. Ieee Transactions on Power Control
5. International Journal of Electrical Power & Energy Systems

Программное обеспечение и Интернет - ресурсы
Широкое использование студентами и преподавателями поисковых систем RAMBLER, GOOGLE, YANDEX.

Библиотечно-информационные ресурсы

Наименование ресурса	Краткая характеристика
http://www.iqlib.ru	Интернет-библиотека образовательных изданий, в которой собраны электронные учебники, справочные и учебные пособия. Удобный поиск по ключевым словам, отдельным темам и отраслям знания
Электронная библиотечная система «Университетская библиотека- online» www.biblioclub.ru	ЭБС по тематике охватывает всю область гуманитарных знаний и предназначена для использования в процессе обучения в высшей школе, как студентами и преподавателями, так и специалистами-гуманитариями

II. ИЗЛОЖЕНИЕ ПРОГРАММНОГО МАТЕРИАЛА

МОДУЛЬ 1

ТЕМА: «NEW ENERGY FROM OLD SOURCES. WIND AND SOLAR ENERGY»

FUTURE SOURCES OF EHERGY.

The further advance of industry demands great quantities of energy. A question arises how much power is available? Until recently the resources of running water, oil gas and coal seemed to be adequate. It was estimated that well before the end of the century the production of coal, oil and gas would fall far behind the demands for them. Of course, we can expand the production of hydroelectric power. The great quantities of electric power generated at present are mostly dependent on various sources of mechanical energy.

Apart from the main sources of energy, that is, fossil fuels, water power meeting most of the present day power requirements of mankind and also apart from atomic energy, there are several other new sources of energy as well. It is so called "new sources of energy",

The scientists the world over are searching for new and plentiful sources of power. This search is taking many directions. They are looking for new and better ways to use the power of wind, waves, ocean tides, power from nuclear fission, solar energy, plasma, lasers, the energy of the magma tic, layer, fuel cells etc. All these seem to offer the greatest promise of success.

The Russian people achieved great success in power generation and nation-wide electrification. The development of power production in the next ten years will depend on the construction of thermal and hydro power stations.

However the role of new energy sources, such: nuclear, tidal, solar, geothermal power and new methods of transformation thermal, chemical, and others to electrical power are to grow in future and this calls for extensive research. The practically unlimited reserves of raw material (water) to obtain thermonuclear fuel, the possibility of direct transformation of thermonuclear energy into electrical one and the absence of radioactive substances in the released gases will make the thermonuclear process ideal method of power production. This will enable us to utilize this energy in any quantity, in any part of the world, and even, if needed, beyond its limits in the boundless spaces of the cosmos. How we learned to convert solar energy into electricity at high efficiency. The sun is sending 40 million (40^{12}) large calories towards the earth every second. The greater part of this energy disperses and some of it is absorbed by the atmosphere. On the average some 30% of this energy reaches the land surface each year. Scientists believe that the problem of using solar energy to obtain -electricity will be settled this century.

The other potential source of energy, a practically inexhaustible one, is the heat of the magma tic layers of the earth, at the depth of about 30 kilometers from the surface of the earth.

We believe that by the end of this century this power source will be commercially exploited and as a result electricity will become available in any place and in practically any amount.

Producing current by thermal action is the next method we consider. Heat produces current when applied to two unlike metal soldered together in two points. The device used is called a thermoelectric couple or thermocouple, for short The word "couple" used in this term should mean that two unlike metals or metals and alloys, say, such as copper and constantan are Joined together so that they can be properly heated in the point of the joint.

The reason the thermocouple generates current is due to the fact, that the heat tears the electrons off of the negatively charged metal at the point of Joint, Just as the electric cell chemical reaction tears the electrons off of the zinc electrode. It is these electrons that constitute the current flowing through the circuit.

Semiconductor photoelectric devices find a wide application both in science and industry scientists are trying to find new and more economic and cheap methods of converting the sun energy directly into electricity. A thin layer of silicon, to which a trace of arsenic has been

added, is coated on one side with an extremely thin layer of silicon containing a trace of boron. As light strikes the surface of the water, gaining electrons, it gets a negative charge the layer: losing them acquires a positive charge. If a circuit is completed, the current will flow through it.

At present in industry there are devices which without any machinery convert thermal energy into electrical one as efficiently as small steam installations do.

Falling on a special kind of cell, a light beam can generate an electric current. The appliance using that phenomenon to produce electricity is photoelectric cell.

It is necessary to mention lasers too, since we know that laser powerful beam can be turned into electricity with a very high, efficiency. The devices similar to semiconductor lasers can transform the energy of light radio waves into electrical energy with efficiency close to 100%. This means that instead of using transmission lines it will be possible to transmit electric power over considerable distances with a negligible loss.

Wonderful prospects are opened up to mankind when we learn to use all these "new sources of energy" economically. They will meet the ever increasing demands in energy.

Task 1 Answer the questions:

I. What are the new sources of power?

2. What possibilities are the new sources of energy opened up to mankind?

3. When will the problem of using' solar energy be settled?

4. Where do we use the energy of the magma tic layers?

5. What methods of producing electricity do you know?

6. Where can the energy of fuel cells be utilized?

7. What are the new means we can transmit power over great distances with?

Task 2 Form nouns of the following verbs, adding suffix -tion, sion, ment.

generate	communicate	provide	revolve
produce	operate	apply	employ
convert	transmit	connect	develop
move	transform	rotate	improve

Task 3 Translate the following sentences.

The more we read, the more we know. 2. The more he worked, the better he understood the importance of this discovery. 3. The earlier we shall begin to work, the sooner we shall finish it. 4. The nearer the summer the warmer the sun shines. 5. The more we know about the structure of the atom, the better we can use its energy. 6. I feel rather better to day. 7. Be knows theory rather well. 8. Do you know him? - Rather. 9. It is rather cold to day. 10. The design of this engine is rather: simple. II. The idea is clear enough. 12. The room is not large enough for our study. 13.

You know the language well enough to help us. 14. Her English is rather good. 15. She must be studying hard.

Task 4 Translate and explain the difference in usage of Modal Verbs.

1. These rules should be carefully studied. 2. The plant can send off the machines by railway. 3. This turbine cannot be repaired in such a short period of time. 4. I knew that he would be able to do this work. 5. I am glad that I was able to help you. 6. You will have to leave at six to catch the train. 7. They may be at home now. 8. He may not know about it. 9. The weather may change tomorrow.10. You must always think twice before you say anything. 11. He may be sleeping now. 12. We shall have to start before it gets dark. 13. I had to stay at home yesterday. 14. The engine should always be kept clean. 15. She must be about twenty.16. You should not smoke, if you feel bad. 17. The efficiency should increase as speed increases.

Task 5 Ask questions about the underlined of each sentence.

1. The scientists the world over are searching for new and plentiful sources of power. 2. They are looking for new and batter ways to use power of wind, waves, tides etc. 3. The Russian people achieved great success in power, generation, 4. The development of power production will depend on the construction of thermal and hydropower stations.

Task 6 Translate, paying attention of modal verbs.

1. Power engines are to free man from the hard lab our. 2. The electronic "brain" is to save man's lab our by carrying out the most complex computations. 3. To make translations with the help of computers English and Russian words should be converted into figures. 4. We might solve many scientific anal technical problems with the help of mathematical formulae.

Task 7 Translate the following sentences.

1. It is in space flights that the fuel cells are proved reliable in operation. 2. It is the extremely high efficiency of the fuel cell that attracts the scientists' attention. 3. It is the fuel cell that is the promising power source for the future. 4. It is the kinetic energy of steam that drives the turbines. 5. It is the kind of fuel burned that influence the furnace shape. 6, It is the furnace volume that depends on the method of burning the fuel.

Task 8 Translate sentences and define the tense.

1. The total generating capacity of the new station will be one million kw. 2. The Krasnoyarsk hydro-electric power station will have the world's largest turbines, 3, They will be testing the device at 5 o'clock. 4. She will be operating several lathes. 5. Scientists will be working hard for years to discover the secret of the plasma. 6. We are going to use the energy of the sun and the magma tic layers to heat homes and produce electricity. 7. Scientists are going to utilize solar energy to produce cold. 8. They are going to create solar refrigerators. 9. We are going to use solar motors in the countries where sunshine is available. 10. The hydroelectric power stations

built in Siberia will be of great importance for the development of local industry. 11. Hydroelectric power station constructed in the Sayan Mountains will be named after V.I. Lenin. 12. The Krasnoyarsk hydroelectric station will here the world's largest turbines, each producing 500.000 kw and when it starts generating power, we shall have the cheapest electricity supply in the world. 13. They will be inspecting the turbine from 2 till 5. 14. This time, on Friday, I shall be visiting the hydro power station. 15. We shall be mastering some operations there the whole day tomorrow. 16. We shall be learning some technological properties of the materials for a long time. 17. We shall make the moving parts of the machines of steel, 18. In the assembling shop they will assemble ready parts into units.

Task 9 Define the function of the word "that".

1. That the temperature of an object depends on the average kinetic energy of its molecules is known to you. 2. That there exist many new sources of energy is well-known fact. 3. Our great scientist Lomonosov was among the first to state that heat phenomena were due to the motion of molecules. 4. The physics of bodies at rest is much simpler than that of bodies in action. 5. A barometer is an instrument that is used to measure air pressure. 6. The current flowing through the wire heats that wire. 7. In impulse turbines we find no difference in the pressure of the steam entering the blades and that of the steam that is leaving them.

Task 10 Compose sentences from the words below:

1. The largest portion, to be generated, of world's power, in the form of electricity.
2. The steam, to produce, to be used, to drive, a generator, a turbine, which an electric current.
3. Scientists, to direct their interest, light, heat and to turn, electricity, into.
4. To provide, the sun, us, with, light during the day.
5. Gases can conduct heat but their conductivity is very low.
6. When the sun shines on the earth, the earth is warmed.
7. The hotter the body, the more energy it absorbs.
8. All bodies radiate heat waves.

Task 11 Translate the following sentences.

1. All bodies either radiate heat or absorb waves from other bodies. 2. Dark surfaces are ‘either good radiators when hot or good absorbers when cold. 3. The motion of the molecules of a solid is harmonic, the molecules moving between specific limits on either side of an average position and seldom pae sing outside those limits.

4. Gases have neither size nor shape of their shape of their own. 5. Neither of these devices will be required for the experiment in question.

6. Neither of our numerous tests brought the expected results.

Wind - Driven Power Plant.

The engineers calculated that the annual energy available in the winds over the earth's surface exceed millions OF KILOWATT hours. Nevertheless, only a comparatively negligible part of that value finds an efficient application under our present conditions.

It is very difficult to say when men first utilized wind-mills as a source of mechanical energy. The Dutch used then for centuries in order to perform certain kinds of mechanical work. Old Egyptian writings tell us that Egyptian used wind power thousands and more years before our times. However, wind power is able to meet but small local needs for mechanical power.

Today scientists designers and inventors pay attention to electricity generation. Electric windmills are in production or operation in a-number of countries; the Russia, the USA? England, France. We should like to point out that in 2004 a large turbine powered by the wind was built for electricity generation in Jalta; the Crimea. The electric generator was housed in an installation raised on a high tower.

A wind power plant must consist of the following main parts:

1. A rotor which is turned round by the wind. A wind-driven rotor must be designed in such a manner that the wind blowing on it causes it to rotate.
2. A tower to raise the rotor well above the earths surface so that it can circulate freely without any danger or damage to people. The tower should be as high as possible because then the rotor intercepts wind moving at a greater and steadier rate than that over the earths surface.
3. The rotor drive в the electric generator and produces power. The three parts mentioned above form the wind-driven power plant.

ТЕМА: «МЕЖДУНАРОДНЫЕ КОНФЕРЕНЦИИ И ПОВСЕДНЕВНЫЕ СИТУАЦИИ, СВЯЗАННЫЕ С ИХ ПРОВЕДЕНИЕМ»

THE OPENING SESSION

EPISODE 1

The next morning Bundle and Bogomolov met in the lobby of the Conference Hall a quarter of an hour before the opening session. Rundle welcomed his Russian friend with a broad smile and Bogomolov grinned back.

CONVERSATION

I WAS JUST FASCINATED

Rundle: Hello, Peter. How are you this morning?

Bogomolov: Fine, thanks. How are you, Michael?

Rundle: Pretty well, thanks. Well, did you enjoy visiting the Plymouth Plantation?

Bogomolov: Enjoyed? I was just fascinated! It's a terrific place, the plantation. I was very impressed. It must cost millions to maintain!

Rundle: I guess so, but they are doing a good business, 'cause there're plenty of visitors and the place is always crowded.
Bogomolov: I also visited the Boston Tea Party Ship and Museum. Most informative.
Rundle: Glad you liked them.

Bogomolov: Oh, they seem to be starting the session. Let's go and find some good seats. I don't want to miss anything. I do feel a little nervous.
Rundle: Let's get moving. Yours is the first lecture, isn't it?
Bogomolov: Right.

Exercises and Speech Patterns

Did you notice how the men greeted each other the next

morning? They said:

- Hello, Peter. How are you this morning?
- I'm fine, thank you. How are you, Michael?
- Pretty well, thanks.

You can greet a colleague or a friend in the following way:

(1)

A.: Good morning, Dr. Smiles. How are you?
B.: Quite well, thank you. And you?
A.: I'm all right, thanks.
(2)

A: Hello, Paul. How's life?
B.: Not too bad. Are you all right?
A.: Yes, thank you.

(3)

A: Morning! Good to see you, Peter.
B.: Hello! How's life?
A.: Not bad, thanks.

If you want to express your feeling of pleasure, you can do it like Dr. Bogomolov:

Rundle: Did you enjoy the Plymouth Plantation?

Bogomolov: Enjoyed? I was just fascinated. It's a terrific place. I was most impressed.

There are some other ways to show you enjoyed something:

- That was a fantastic museum. Unforgettable! (1)
- That was an exciting experience, I had a wonderful time. (2)
- It's an incredibly beautiful place! Thank you for telling me about it. (3)

T a s k 1 Listen to the conversation and the examples on the tape.

T a s k 2 Read the conversation and the examples several times with a partner, trading roles. Then say the key phrases from memory.

T a s k 3 Role play. Work in pairs. Greet each other. Then one of you should play a person who:

a) Has been to the Metropolitan Opera;

b) Visited the Smithsonian Institution in Washington, D.C.;

c) Climbed the Empire State Building;

d) Taken a boat tour in Hunson Bay.

The other asks if you enjoyed visiting those places. Use the above examples.

Note how Bogomolov offered his American colleague to go and find good seats in the Conference Hall He said:

Bogomolov: They seem to be starting the session now. Let's go and find some good seats. I don't want to miss anything. And I do feel a little nervous.
Rundle: OK. Let's get moving. Yours is the first lecture, isn't it?
Bogomolov: Right.
In a situation like this you can also use the following phrases:

- I hear the bell ringing. They seem to be starting. Let's get moving.(1)
- The chairman doesn't seem to be busy at the moment. Let's come up and talk to him.(2)
- They seem to be ready to set off. Let's get on the bus or we'll be late.(3)

T a s k 4 Listen to the above examples and say them, imitating the speakers.

T a s k 5 Role play. Work in pairs. Offer your partner:

a) to go into the Conference Hall; b) to take seats; c) to get on the bus; d) to approach the chairman; e) to get a text computer printed.

МОДУЛЬ 2

ТЕМА: «FUTURE SOURCES OF ENERGY. RENEWABLE ENERGY INDUSTRY»

«GEOTHERMAL ENERGY»

PART 1

Task 1 Read and translate the text below.

Introduction

One is tempted to talk of the seven ages of geothermal development. From prehistory, natural hot springs have been used by man for bathing and cooking, and there is some evidence of piped systems as early as the 14th century, but the second age — the managed exploitation of heat from the Earth — really began about one hundred years ago with the first piped heating systems in Europe and USA. These were followed closely by the first steps in commercial power generation (as early as 1904 in Italy), which developed quietly but

unspectacularly up to the time of World War II. The third age (ca. 1950-1970) was a period of slow consolidation, with systems developing slowly but — above all — with far greater detailed knowledge of the underground and its exploration emerging, primarily through the oil industry.

The fourth age (1973-1980) was the golden age of geothermal energy. Spurred by the first oil shock and with a solid foundation of geological knowledge, geothermal power stations began to appear in more than 30 countries. During this period, the growth rate of worldwide installed capacity touched 14% per year, and averaged 8.5%. Similar though less spectacular development occurred also in direct geothermal heating applications.

Worldwide Installed Geothermal Electric Capacity

Part of the reason for this enthusiastic development was the reliability of geothermal resources. Unlike the other sustainable energy sources such as wind or solar, geothermal resources provide firm power, 24 hours per day, 365 days per year. It is not unusual to find geothermal plant with annual availability factors in excess of 98%, so load factors can be high, the energy supplied by geothermal is some 3.5 times greater than for wind plant. This firmness in itself can be a considerable asset to the utilities.

By the early 1980's, however, fossil fuel supplies had stabilized and prices were falling in real terms. For a technology that required a high initial capital investment and achieved its returns in terms of saving on fossil fuels, that was bad news. Coupled with the fact that this was a period of high interest rates and that — at least in new areas — the geological risk (and hence risk to the invested capital) is high, 1985— 1995 was essentially a period of stagnation for geothermal development.

There is evidence that this situation is now changing, and that we may be entering into the sixth age of geothermal development — one in which the environmental and other advantages of geothermal development (by comparison with other energy sources, be they fossil or renewable) begin to be recognized by a wider public. If this is true, we can expect this sixth age to merge imperceptibly into a seventh age early in the next century when new technologies — for which the research started in the 1970's — will extend the opportunities for geothermal usage to geographically and technically wider areas.

Not only are the better geothermal zones increasingly well understood, but techniques of exploration and interpretation are becoming increasingly sophisticated — thanks, again, to the hydrocarbons industry which relies on essentially the same range of technologies. Geother - mal's really strong point, however, is its potential to be environmentally friendly.

By operating geothermal systems as a closed loop, and reinjecting the contaminants along with the cooled water, the environmental impact can be reduced almost to zero.

VOCABULARY

to tempt- соблазнять, искушать
evidence -очевидность
to emerge- появляться
to spur- подгонять, побуждать
to recognize- признавать
asset- ценный вклад
opportunity- возможность
sophisticated- сложный, замысловатый
to appear- появляться
to occur- происходить
advantage- преимущество
to reduce- уменьшать
to inject- вводить

Task 2 Find the Russian equivalents to the following English word combinations.

- geothermal development
- natural hot springs
- commercial power generation
- the growth rate
- worldwide installed capacity
- sustainable energy sources
- annual availability factors
- load factors
- fossil fuel supplies
- high initial capital investment
- high interest rates
- the environmental impact

- экологически устойчивые источники энергии
- установленная мощность во всем мире
- темп роста
- рентабельное производство электроэнергии
- развитие геотермальной энергетики
- природные горячие источники
- ежегодные коэффициенты эксплуатационной готовности
- влияние на окружающую среду
- коэффициенты нагрузки
- запасы ископаемого топлива
- высокое начальное вложение капитала
- высокие ставки процента

Task 3 Translate the sentences with Participle I and the Gerund.

a) From prehistory, natural hot springs have been used by man for bathing and cooking.

b) For a technology that required a high initial capital investment and achieved its returns in terms of saving on fossil fuels, that was bad news.

c) By operating geothermal systems as a closed loop, and reinjecting the contaminants along with the cooled water, the environmental impact can be reduced almost to zero.

Task 4 Find the paragraphs in the text where it is said about:

a) the sixth age of geothermal development;
b) prehistory of geothermal energy;
c) the period of stagnation for geothermal development;
d) sophisticated techniques of exploration and interpretation.

Translate the paragraphs into Russian.

Task 5 Say whether the following statements are true or false.

a) From prehistory, natural hot springs have been used by man for heating and watering.
b) The second age — the managed exploitation of heat from the Earth — really began about fifty years ago with the first piped heating systems in Europe and USA.
c) The third age (ca. 1950—1970) was a period of slow consolidation, with systems developing slowly.
d) The fourth age (1973-1980) was the golden age of geothermal energy.
e) By operating geothermal systems as a closed loop, and reinjecting the contaminants along with the cooled water, the environmental impact can be increased.

Task 6 Read the text above once again and make up a list of the key words and topic sentences.

Task 7 Determine the main idea of each paragraph.

Task 8 Speak on the seven ages of geothermal development.

PART 2

Task 1 Answer the questions using the information from the text below. Think of the title to the text.

1. What is an example of a geothermal direct use application?
2. What technology allows high efficiency?
3. When are there no $C0_2$ emissions?
4. How many units have been established in Louisiana?
5. Where is currently the main activity?
6. What countries are the members of the Geothermal Heat Pump Consortium?
7. What are the benefits of geothermal technology?

Geothermal heat pumps, or ground-source heat pumps, for heating and cooling buildings are a rapidly growing example of a geothermal direct use application. The technology has developed almost without publicity in recent years to become a significant new factor in the supply equation. This is an electrically-based technology that allows high efficiency, reversible, water-source heat pumps to be installed in buildings in most geographical and

geological locations (worldwide). The combination of increasing levels of electrical generation efficiency, with the impressive energy amplification of geothermal heat pumps means that space heating can be delivered with effective efficiencies that exceed 100%. The "additional" energy is supplied from the ground. In addition these systems also offer highly efficient cooling. The types of buildings that are using ground-source heating and cooling in this manner range from small utility or public housing, through to very large (MW-sized) institutional or commercial buildings. This technology can offer up to 40% reductions in Commissions against competing technologies. If all of the electricity is supplied from non-fossil sources, there are no C02 emissions associated with heating and cooling a building.

Recently, several large-scale arrays have been installed to feed larger systems where suitable supplies of deep geothermal water are not available. In the largest development to date, 4000 units - each with its own borehole — have been established on a US Army base in Louisiana to provide heating and cooling.

The concept was developed independently in the US and Europe and, although Sweden and Switzerland have installed many thousands of units to provide winter heating in houses, the pace of installation in the USA and Canada during the last fifteen years has overtaken the European rate. There are now believed to be well over a quarter of a million installations in place in North America.

While the main activity is currently in the USA, there are a growing number of installations in Canada, Sweden, Switzerland, Austria and Germany. Smaller numbers are being installed in other European countries, and in Australia. The Geothermal Heat Pump Consortium currently has over 750 institutional, corporate and commercial members, and 40 international members from countries including Australia, Canada, China, Croatia, Finland, Germany, India, Japan, the Netherlands, Poland, Russia, Sweden, Turkey, and the UK.

Ground-source heat pumps are perhaps the first indication of the seventh age of geothermal technology, breaking the final barrier of geographical availability.

To sum up: geothermal technology offers many benefits - clean, indigenous, firm energy - but suffers from economic uncertainties and geographical limitations. These problems are being actively addressed and future prospects seem bright

TIDAL ENERGY

Task 1 Read and translate the text below.

Over the past three decades the feasibility of using ocean tides to generate electric power has been investigated at many sites.

Results suggest that the potential for economic development is small. Of the approximately 22,000 TWh per year dissipated by the tides, 200 TWh is now considered economically recoverable and less than 0.6 TWh is produced by existing plants.

Six areas account for well over half of the potentially developable energy:

The headwaters of the Bay of Fundy (Canada);

The Severn estuary (United Kingdom);

The Gulf of St. Malo (France);

The south-east coast of China;

and Russian coasts bordering the White Sea and Sea of Okhotsk.

Other potentially feasible sites include the Mersey estuary and smaller sites bordering the Irish Sea and Bristol Channel (United Kingdom), the Gulf of Kachch (India), the west coast of Korea, the north-west coast of Australia, Cook Inlet (Alaska) and the Gulf of San Jose (Argentina).

By far the largest tidal plant in service is Ranee (France), with a capacity of 240 MW and an annual output exceeding 500 GWh. Others include the 20 MW Annapolis plant in Canada, several small units in China with total capacity of about 5 M W and a 400 kW experimental unit near Murmansk in Russia.

Most designs, existing or proposed, have opted for a single tidal basin to create hydraulic heads and propeller turbines to extract energy therefrom. Linked and paired basins have also been considered. Innovative approaches have included extraction of energy directly from tide races using a variety of prime movers.

The main obstacle to development is economic. Capital costs are high in relation to output: a consequence of the low and variable heads available at even the best sites. Heads available at the turbine vary throughout each tidal cycle, averaging less than 70% of the maximum. As a result, installed capacity is underutilized, typical capacity factors tending to fall in the range 0.23 to 0.37. Low heads imply that civil as well as mechanical engineering components must be large in comparison to output. For such reasons, tidal plants are likely to be practicable only where energy is concentrated by large tides and where physical features permit construction of tidal basins at low cost.

Significant capital-cost reductions through improved design and construction techniques have been achieved over the past three decades. In China a somewhat different approach has been taken: tidal plants have been built as part of broader schemes of resource utilization — typically land reclamation or aquaculture.

In a world increasingly sensitive to environmental factors, tidal plants must avoid unacceptable impacts. Tidal power is non-polluting and in this respect superior to thermal

generation. Beyond that, it is difficult to generalize. No serious long-term impacts are known to have been caused by the Rance tidal power plant, but large developments in the Bay of Fundy would, it has been predicted, perturb the tidal regime, with impacts on New England shorelines.

In recent years, commercial acceptance of combined-cycle generation based on combustion turbines has reduced the potential economic and environmental costs of meeting future capacity and energy demands through thermal plants wherever natural gas is available at competitive prices. This has tended to increase the economic bias against tidal power.

Another development with adverse implications for tidal power is the trend in many countries to adopt market pricing of electric energy and dispense with regulatory pricing. This in almost every case entails competition in the generation function. Under such conditions, competitors will be under strong compulsion to choose plant types having the shortest construction times and the lowest unit capital costs.

Such factors render construction of new tidal generation capacity unlikely during the near future, unless strong incentives such as emission caps or carbon taxes are imposed.

VOCABULARY

feasibility- осуществимость, выполнимость
to investigate- исследовать
estuary- дельта, устье реки
to exceed- превышать
therefrom- оттуда
to extract- извлекать
innovative approach- новаторский подход
to imply- подразумевать
to predict- предсказывать
to perturb- нарушать
bias- наклон, уклон
to dispense- распределять
to entail- влечь за собой, вызывать
to render- изменить состояние чего- либо
site- место, площадка (для строительства)
obstacle- препятствие

Task 2 Give the Russian equivalents to the following English word combinations:

— ocean tides
— the largest tidal plant
— annual output
— a single tidal basin
— innovative approaches
— tide races
— mechanical engineering components
— design and construction techniques

— tidal basins
— combined-cycle generation combustion turbines
— energy demands
— new tidal generation capacity

Task 3 Find in the text the English equivalents to the following Russian word combinations:

— экономически возместимый
— потенциально возможные площадки для станций
— быстрое приливо-отливное течение
— малый и переменные напоры
— капитальные затраты
— усовершенствованные методы проектирования и строительства
— выработка с комбинированным циклом

Task 4 Translate the following sentences paying attention to the difference in form and translation between Participle I and Participle II.

a) Of the approximately 22,000 TWh per year dissipated by the tides, 200 TWh is now considered economically recoverable and less than 0.6 TWh is produced by existing plants.

b) Most designs, existing or proposed, have opted for a single tidal basin to create hydraulic heads and propeller turbines to extract energy therefrom.

c) Linked and paired basins have also been considered.

d) As a result, installed capacity is underutilized, typical capacity factors tending to fall in the range 0.23 to 0.37.

e) In recent years, commercial acceptance of combined-cycle generation based on combustion turbines has reduced the potential economic and environmental costs of meeting future capacity and energy demands.

f) Under such conditions, competitors will be under strong compulsion to choose plant types having the shortest construction times and the lowest unit capital costs.

Task 5 Read the text above and make up a list of the key words and topic sentences.

Task 6 Read the text and say whether the statements are true or false according.

a) Results suggest that the potential for economic development is large.

b) Five areas account for well over half of the potentially developable energy.

c) By far the largest tidal plant in service is Ranee (France), with a capacity of 240 MWand an annual output exceeding 500 GWh.

d) Linked and paired basins have not been considered.

e) The main obstacle to development is economic.

f) Heads available at the turbine vary throughout each tidal cycle, averaging less than 70% of the maximum.

g) Tidal power is polluting and in this respect not superior to thermal generation.

Task 7 Find the passages in the text where the following ideas are expressed. Translate the passages into Russian.

a)The feasibility of using ocean tides to generate electric power has been investigated at many sites.

b)Innovative approaches have included extraction of energy directly from tide races using a variety of prime movers.

c)Commercial acceptance of combined-cycle generation based on combustion turbines has reduced the potential economic and environmental costs.

Task 8 Make up the plan of the text using the topic sentences.

Task 9 Retell the text.

ТЕМА: «МЕЖДУНАРОДНЫЕ КОНФЕРЕНЦИИ И ПОВСЕДНЕВНЫЕ СИТУАЦИИ, СВЯЗАННЫЕ С ИХ ПРОВЕДЕНИЕМ»

EPISODE 2

The Symposium was quite crowded. There were a few hundred participants from a dozen of countries. The Chairman of the session, who was also the Chairman of the Organizing Committee, started the meeting with an opening address.

CONVERSATION THE OPENING ADDRESS

Chairman: Distinguished guests, ladies and gentlemen, dear colleagues! It is a great pleasure for me as Chairman of the Organizing Committee to welcome you to the International Symposium on Semiconductor Device Research sponsored by the Division of Chemical Physics of the American Physical Society. I would like to give a special welcome to the President of the American Physical Society, Professor Keneth Johnson, who has found the time to attend our meeting. I express our warmest welcome to the Assistant Director of the Massachusetts Institute of Technology, Professor Charles Stucky. I am sure you will join me in extending a particular welcome to our colleagues from other countries. We are pleased that so many outstanding researchers from all over the worlds have come to attend this Symposium. We would like to convey our best wishes to all the participants and guests.

Two years have passed since our last meeting in Germany. It is certainly a short time, but it has turned out to be very fruitful. There has been remarkable progress in our understanding of

the device operation and some underlying phenomena. The most notable achievement is the discovery of room temperature superconductivity. It has brought about improvement in structure technology and in designing new devices and materials. However, our knowledge of the mechanism of superconductivity still remains incomplete.

Our main goal in holding this Symposium is to discuss various aspects of new materials for semi- and superconductor structures. The range of subjects to be considered is quite large. But it is our hope that the Symposium will show the current state -of things in this rapidly developing area and stimulate new ideas. Because the meeting has brought together scientists with different points of view, with different backgrounds of training and experience, we expect stimulating discussions of theoretical and experimental problems. I wish you success. Thank you.

Exercises and Speech Patterns

You have noticed that the Chairman of the Organizing Committee, who opened the plenary session, started with a general salutation:

• Distinguished guests, ladies and gentlemen, dear colleagues! It is a great pleasure for me to welcome you to the International Symposium on Semiconductor Device Research sponsored by the Division of Chemical Physics of the American Physical Society.

Addressing a large scientific audience you can also use the following ritual forms of general salutation, beginning from the most important and distinguished persons:

- Mr. President, ladies and gentlemen, dear colleagues! It is an honor and privilege for me to welcome you to the Fifth International Conference on Hot Plasma. (1)

- Mr. Chairman, honored guests, ladies and gentlemen! It is my great privilege and personal pleasure to welcome you to the meeting of the American Physical Society. (2)

- Ladies and gentlemen, dear colleagues! It is a rare opportunity and honor for me to address this Symposium on behalf of the International Society for Experimental Biology. (3)

The general salutation was followed by individual ones, again beginning from the most important persons. The chairman said in his opening address:

- I would like to give a special welcome to the President of the American Physical Society, Professor Kenneth Johnson, who has found the time to attend our meeting. I express my warmest welcome to the Assistant Director of the Massachusetts Institute of Technology, Professor Charles Stucky. I am sure you will join me in extending a

particular welcome to our colleagues from other countries. We would like to convey our best wishes to all the participants and guests.

Generally, there is little variation in the structure and wording of salutation. Listen to these examples:

- We extend a warm welcome to the scientists from other countries. (1)
- We are happy to have with us Dr. Ambree who will give an invited lecture in this plenary session. (2)
- I would like to add my cordial words of welcome to everyone present here. (3)

Task 1 Listen to the above opening address and the examples of salutation that follow it.

Task 2 Read the opening address and the examples of salutation several times.

Task 3 Write the English equivalents of the following phrases. Offer two or more variants, where possible.

Господин председатель, уважаемые гости, дамы и господа, дорогие коллеги. Я считаю для себя большой честью и привилегией приветствовать Вас по случаю открытия Третьей международной конференции по проблемам...; для меня большая радость обратиться к Вам с приветственным словом по случаю открытия Симпозиума по...; мне оказана большая честь тем, что предоставлена эта редкая возможность приветствовать Вас в связи с началом работы Международной конференции по...; не сомневаюсь, что Вы разделите со мной сердечные приветствия нашим зарубежным коллегам; я горячо приветствую присутствующего на нашем заседании президента Американского физического общества профессора Кеннета Джонсона; от имени Оргкомитета нашего симпозиума разрешите мне передать горячие приветствия нашим почетным гостям - официальным представителям мэрии города Бостона; мы хотели бы передать наилучшие пожелания всем участникам и гостям симпозиума.

Task 4 Role play. Imagine you have been invited to open a conference on problems of your science. Act out an opening address, starting from a general salutation and then giving individual salutations. You can preliminarily write down the text of your opening address and learn it.

Generally, salutations are followed by reference to the previous meeting on the subject and a brief review of the progress that has been made since then. This is how it was done in the above address:

- Two years have passed since our last meeting in Germany. It is certainly a short
time, but it has turned out to be very fruitful. There has been remarkable progress
in our understanding of the device operation. The most notable achievement is the discovery of room temperature superconductivity. It has brought about improvement in structure
technology and in designing devices and materials.

This can also be done in another way:

- It is only two years since we met in Germany. It is certainly a very short period
of time but the work that has been done on new materials and structures is impressive.

- Particularly noteworthy are the studies on superconductivity. An excellent example of a recent achievement is the design of heterostructures with superconducting layers.

GLOSSARY

attend – посещать
achievement - достижение, успех
chairman – председатель
distinguished – высокопоставленный
particular – индивидуальный, отдельный, одиночный
improvement – улучшение, усовершенствование; исправление
extending - расширять сферу влияния
researchers - исследователь
fruitful - приносящий хорошие результаты (преим. о действиях)
remarkable - замечательный, выдающийся, поразительный
incomplete - недостаточный, неполный
discuss - обсуждать
rapidly - быстро
scientists - человек, применяющий научный метод
experience - опыт работы, стаж работы
effort - сила, усилие
employment - устройство на работу
equipment - оборудование
establish - основывать
event - мероприятие
exactly - точно, как раз
excellent - прекрасный
exciting - интересный, увлекательный
presentation of a paper - представление доклада
realize (v) - понимать, осознавать

reschedule (v) - переносить срок
schedule (v) - намечать, планировать
shift (v) - передвигать, переносить

МОДУЛЬ 3

ТЕМА: «AUTOMATION IN INDUSTRY. EFFICIENCY IN ENGINEERING OPERATIONS»

CAREERS IN ENGINEERING.

Task 1 List some of the jobs in engineering. Combine your list with others in your group.

Task 2 Work in groups of three, A, B, and C. Scan your section of this text, A, B, or C. How many of the jobs in the combined list you made in Task 1 are mentioned in your section?

JOBS IN ENGINEERING.

A

***Professional engineers* may work as:**

Design engineers: They work as part of a team to create new products and extend the life of old products by updating them and finding new applications for them. Their aim is to build quality and reliability into the design and to introduce new components and materials to make the product cheaper, lighter, or stronger.

Installation engineers: They work on the customer's premises to install equipment produced by their company.

Production engineers: They ensure that the production process is efficient, that materials are handled safely and correctly, and that faults which occur in production are corrected. The design and development departments consult with them to ensure that any innovations proposed are practicable and cost-effective.

B

Just below the professional engineers are the *technician engineers.* They require a detailed knowledge of a particular technology - electrical, mechanical, electronic, etc. They may lead teams of engineering technicians. Technician engineers and engineering technicians may work as:

Test/Laboratory technicians: They test samples of the materials and of the product to ensure quality is maintained.

Installation and service technicians: They ensure that equipment sold by the company is installed correctly and carry out preventative maintenance and essential repairs.

Production planning and control technicians: They produce the manufacturing instructions and organize the work of production so that it can be done as quickly, cheaply, and efficiently as possible.

Inspection technicians: They check and ensure that incoming and outgoing components and products meet specifications.

Debug technicians: They fault find, repair, and test equipment and products down to component level.

Draughtsman women and designers: They produce the drawings and design documents from which the product is manufactured.

C

The next grades are *craftsmen/women.* Their work is highly skilled and practical. Craftsmen and women may work as:

Toolmakers: They make dies and moulding tools which are used to punch and form metal components and produce plastic components such as car bumpers.

Fitters: They assemble components into larger products.

Maintenance fitters: They repair machinery.

Welders: They do specialized joining, fabricating, and repair work.

Electricians: They wire and install electrical equipment.

Operators require fewer skills. Many operator jobs consist mainly of minding a machine,especially now that more and more processes are automated. However, some operators may have to check components produced by their machines to ensure they are accurate. They may require training in the use of instruments such as micrometers, verniers, or simple 'go/no go' gauges.

Source: Adapted from S. Moss & A.S. Watts, *Careers in Engineering,* 3rd edition

Task 3 Combine answers with the others in your group. How many of the jobs listed in Task 1 are mentioned in the whole text?

Task 4 Who would be employed to:

1 test completed motors from a production line?

2 find out why a new electronics assembly does not work?

3 produce a mould for a car body part?

4 see that the correct test equipment is available on a production line?

5 find a cheaper way of manufacturing a crankshaft?

6 repair heating systems installed by their company?

7 see that a new product is safe to use?

8 commission a turbine in a power station?

Reading *Inferring from samples*

In Task 5 below and in the Listening (Task 7), you are asked to infer from a small sample of text information which is not clearly stated. Use the clues in the samples and the knowledge you have gained from the text *Jobs in engineering.*

Task 5 As a group, try to identify the jobs of these workers from their statements.

1. We perform standard chemical and physical tests on samples, usually as a result of a complaint from inspectors on the production line. We are an important part of production. We have the authority to stop the line if we find something seriously wrong. It's interesting work, and we're able to move around from test to test and chat. Sometimes, admittedly, the work gets a bit repetitive.

2. All machinists can be difficult. The older blokes especially don't like me telling them their work isn't good enough and instructing them to do it again. One or two of them seem to think the inspector is always out to get them. I'm constantly having to calm things down.

3. We measure up the components to see that they are the right size and shape, and we make any minor adjustments ourselves with hand tools or power tools. All along, parts will need adjusting slightly and you have to check things at each stage with measuring instruments and gauges. You have to get a feel for it- clearances have to be just right. Otherwise things won't fit together.

4. I find my job a very satisfying one. It's never easy to say exactly why one likes a job. I think the basic thing I get out of my profession at the moment is the creativity that is involved in design work. You start from square one with a plain sheet of paper. You draw a component. You design something and perhaps a few months later you can see the end product. And you get told whether or not your design works! I think it's that aspect that I find most satisfying.

5. I enjoy my job. I really like doing the same thing every day-exactly the same job. You know what to look for and how things should be. You know how the machine-or the machines-run, when a machine is working properly and when there is something wrong with it. I really like the routine. I don't have dreams of becoming a supervisor or anything like that. I'm just content running my machines.

6. My company makes desalination equipment. It takes the salt out of sea water so it can be used for drinking and irrigation. A lot of our customers are in the Middle East. I have to go there whenever new equipment is being set up to make sure it's properly installed and everything is running OK.

Source (quotations 1-5): T. May, *People at Work: Working at a light engineering plant*

Speaking practice *Role play*

Task 6 Work in pairs, A and B. Each of you has profiles of three workers in a light engineering plant which supplies car electrical components such as starter motors, fuel

pumps, and alternators. Play the part of one of these workers and be prepared to answer questions from your partner about your work. Your partner must try to identify your job from your replies. In turn, find out about your partner. Do not give your partner your job title until he or she has found out as much information as possible and has made a guess at your occupation. Try to find out:

1 Age

2 Education

3 Qualifications

4 Nature of work

5 Who he/she is responsible to

6 What he/she feels about his/her work

Task 7 Listen to these workers talking about their jobs. Try to match each extract to one of these jobs.

a Methods engineer

b Systems analyst

c Toolmaker

d Machine tool development fitter

e Foreman/woman

f Applications engineer

ТЕМА: «МЕЖДУНАРОДНЫЕ КОНФЕРЕНЦИИ И ПОВСЕДНЕВНЫЕ СИТУАЦИИ, СВЯЗАННЫЕ С ИХ ПРОВЕДЕНИЕМ»

CHAIRING A SESSION

EPISODE 1

Rundle went up the podium and started to speak.

CONVERSATION

PRESENTING A PAPER

Rundle: Thank you, Mr. Chairman. I am happy to have this opportunity to present my paper at this working group session. The purpose of this study was to understand the mechanism of intersubband scattering in two-dimensional electron gas in heterost-ructures. It is well known that some interesting research has been done in this field in recent years. Yet, it is^ not clear why interband scattering rate does not increase with temperature. So the aim Of this work was to find an explanation for the temperature -dependent intermodulation. We suggest an explanation in terms of oscillations in the Fermi level, which is confirmed by a

model calculation. Now let me discuss in some detail the data we have obtained and the conclusions we have drawn.

I would like to start by showing some slides. *(To the projectionist.)* The first slide, please. Here we see the intermodulation as a function of temperature. The data have been multiplied by a factor of 2.5 to better display the low-field region. Let's have a look at this plot. Next slide, please. This is a Dingle plot for a sample with only one subband occupied. I would like to stress that the amplitude of the resistance oscillations has been corrected for temperature. Full circles are for a temperature of 4.10 Kelvin. *(To the projectionist.)* Next slide, please. Could we make the picture a bit brighter? Thank you. Here we see Dingle plots for the data when two subbands are occupied. Full circles are for the low frequency that is for the upper subband. The open circles are for the high frequency, or the lower subband. Please, note the difference between the two lines which are least-square fits to the data. I'm afraid we'll have to skip the next two slides, because we're short of time. *(To the projectionist.)* Can we see the last slide, please? This slide demonstrates the relationship between the experimental data and the model calculations, and you can see a good agreement. This enabled us to make the following conclusion. When a semiclassical treatment of the amplitude of the low-field oscillations in two-dimensional systems is extended to the case of the two occupied subbands, the intercept of the Dingle plots depends on the inter-subband scattering. In particular, in some cases the intercept depends on the intersubband fraction of scattering for most of the carriers. Experimental results agree with this theory and show that in the heterojunction investigated approximately one-third of the scattering is inter-subband. In contrast with a previous interpretation, we attribute the phenomenon to oscillations in the Fermi energy rather than to the acoustic phonons. Our explanation is supported by **a** model calculation. With this I would like to finish. If there are questions I'll be glad to answer them. Thank you.

Exercises and Speech Patterns

You have noticed that the speaker starts his paper by formulating the aim of the work he is presenting. Rundle does this as follows:

- The purpose of this study was to understand the mechanism of intersubband scattering in a two-dimensional electron gas in heterostructures.

You can also use the following structures:

- The aim of this study was to see why a direct measurement of this effect does not confirm a the previous interpretation.

- The aim of this work was to find an explanation for the disagreement.
- The purpose of this paper is to report an experimental observation of this effect.

Task 1 Listen to the above examples on the tape.

Task 2 Read the examples imitating the tape, then say them from memory.

Task 3 Role play. Act as a speaker who formulates the aim of his study or the purpose of his paper.

A speaker often points out the interest in this particular problem. One can do it by using the following structures:

- There is much interest in the problem today due to the importance of the electron scattering mechanism. (1)

- The problem attracts much attention today because the understanding of the scattering mechanism is important for the device construction. (2)
- The problem is interesting from many points of view. (3)

Task 4 Listen to the above examples on the tape.

Task 5 Read the examples imitating the tape, then say them from memory.

Task 6 Role play. Suppose you are the speaker who mounts the podium to present his paper. Thank the chairman who introduced you, say you appreciate this opportunity to present your paper, outline clearly the aim of your study.

Task 7 Listen to Rundle's presentation again and read the text of Ms paper. Now you describe the aim of your work and the important details.

Task 8 Role play. Work in pairs. Prepare for an oral presentation of some of your research data. Use illustrations, which your partner shows as slides. Imitate Rundle in commenting on the illustrations.

When a speaker finishes his presentation, he usually says:

- In conclusion I would like to say that the interpretation I have described is supported by experiment. (1)
- To summarize, I would like to repeat the main points. (2)
- Now let me repeat the main points again. (3)
- Let me summarize the main points. (4)

Each presentation is concluded with «Thank you».

Task 9 Listen to the above examples.

Task 10 Read the examples imitating the tape.

Task 11 Role play. Act out a full-length presentation of a paper, including all the points practiced in this Unit. One of you acts as Chairman.

GLOSSARY

agenda (n) - повестка дня
agreement (n) - *зд.* соответствие
appointment (n) - встреча (деловая)
approach (v) - приближаться, подходить к
brief (adj) - короткий, лаконичный
chair (v) - возглавлять, быть председателем
chairman, chair (n) - председатель
clarify (v) - разъяснять, вносить ясность
consult (v) - справляться, посоветоваться
cover (v) - охватывать
fail (v) to do smth - не суметь сделать что-л.
familiar (adj) with - хорошо знакомый с
focus on (v) - сосредоточивать внимание на
keep to the point - говорить по существу
manage (v) - *зд.* Справляться
prospective (adj) - будущий, предполагаемый
provide (v) a basis for - обеспечивать основу для
present (v) a paper - представить, сделать доклад
presentation of a paper - представление доклада
realize (v) - понимать, осознавать
reschedule (v) - переносить срок
schedule (v) - намечать, планировать
shift (v) - передвигать, переносить
skip (v) - пропускать, опускать
session (n) - заседание
trigger off (v) - вызывать, начинать
working group - секция

МОДУЛЬ 4

ТЕМА: «ENGINEERING AS A PROFESSION»

APPLYING FOR A JOB.

Task 1 What sort of engineering job do you do at present or would you like to do in the future? What are the attractions of the job? Compare answers with others in your group.

Task 2 Answer the questions below about this job advertisement.

AAA>>> Castleton Airport

As a highly successful part of AAA pic, we handled approximately 5 million passengers last year. Further expansion of the airport facilities has created a career opportunity for the following:

Engineering Technicians

c.£13,000

In this multi-skilled role you will carry out corrective and preventative maintenance on a variety of electrical, electronic, and mechanical plant. You will use computer-based monitoring systems for effective control, fault diagnosis, and operation of plant and equipment.

Applicants should have a recognized HNC or National Certificate in Electrical / Electronic Engineering and have served a recognized apprenticeship. Experience in the operation and maintenance of electromechanical plant utilizing electronic system control including experience of HVAC plant and systems, electronic PLC systems, boiler control systems, positional and electronic speed control systems including hydraulics, pumps, and heat exchangers would be desirable.

This demanding position requires effective communication skills together with a flexible attitude.

A clean current driving license is essential.

In return you can expect an attractive salary and benefits package.

Please forward a comprehensive CV to Denise Dickens, Personnel Department, Administrative Block A, Castleton Airport, Castleton CS213SL. Closing date for receipt of completed applications is 31 December.

1 Which company is advertising?
2 Where are the jobs based?
3 At what professional level are the jobs available?
4 Applicants from which branch of engineering are eligible?
5 What qualifications are required?
6 In addition to qualifications, what must the applicants have completed?
7 List some of the areas in which experience is sought.
8 Might you be considered for the job without this experience?
9 In addition to qualifications and experience, what characteristics should applicants have?
10 Which non-professional qualification is essential?
11 What might a benefits package include?
12 What are PLC systems?
13 What does HVAC mean?
14 What is a CV?

Task 3 Fiona Weaver decides to apply for one of the posts. Study her CV below. Answer these questions.

1 What is her highest educational qualification?

2 Why do you think the education and experience sections of her CV start with the most recent events?

3 Why does she give two references?

4 Why has she chosen these people to be her referees?

5 Why does she include interests and activities?

CURRICULUM VITAE

Personal details

Name: Fiona Weaver

Date of birth: 7 April 1974

Address: 6 Haymarket, Newcastle, NCI

Marital status: Single

Education and qualifications

1991-1995 Faraday College of Further Education, Newcastle
- National Certificate in Electrical and Electronic Engineering
(day release from S & T (UK) Ltd)

1985-1990 George Stephenson Secondary School, Newcastle

I hold a clean driving license. I have been driving for three years.

Work experience

1995 to present Inspection Technician
Sturner & Thomson (UK) Ltd
- Responsible for checking incoming components and completed products using a wide range of test equipment including computer-based record systems.

1991-1995 Apprentice electrical technicians
Sturner & Thomson (UK) Ltd

1990-1991 Office junior
Brent & Wicker, Solicitors
- Basic secretarial duties-filing, word-processing, telephone receptionist, in a busy lawyer's office

Interests and activities

Travel, modern dance, swimming

References College: Work:
Mr Andrew Wood Mrs Joy Milne

Head of Department	Personnel Officer
Electrical Engineering	S & T (UK) Ltd
Faraday College	North Street
Cornwallis Road	5WCASTLE NC14 7TL
NEWCASTLE NC2 3 PL	

Task 4. Study this letter of application which accompanied the CV. What information does it add to the CV?

6 Haymarket
Newcastle
NC1 4YU

15 December 19-

Ms Denise Dickens
Personnel Department
Administrative Block A
Castleton Airport
Castleton CS21 3SL

Dear Ms Dickens,

Re: Engineering Technicians
I would like to apply for the post of Engineering Technician as advertised in today's issue of the Tribune. I enclose my CV with the names of two referees.

You will note from my CV that I have a National Certificate in Electrical and Electronic Engineering and considerable experience. My work at S & T (UK) means that I am familiar with HVAC plant and systems including electronic system control. As an inspection technician, I have experience of a wide range of systems for product testing and component evaluation.

I enjoy my work at S & T but would like now to broaden my experience, especially in the area of maintenance. I feel that I can bring considerable skill to the post together with the ability to work well in a team. I am also interested in further improving my qualifications by studying for an HNC, part-time.

I look forward to hearing from you.

Yours sincerely

Fiona Weaver

Speaking practice *Role play*

Task 5. Imagine you are Ms Dickens of Castleton Airport. List Fiona's strong points and weak points. Plan questions to ask her at her interview.

Task 6. Now divide into pairs so that you are working with another student. Act out the interview with one being the applicant and the other the personnel officer. You can change Ms Dickens to Mr Dickens and Fiona Weaver to Michael Weaver if you wish.

Task 7. Study the advertisements on the following pages. Select suitable jobs for which these applicants could apply.

1 Technician engineer, 27, HNC in Electrical Engineering, with two years' sales experience.

2 Professional engineer, 3 5, with five years' experience in the automotive industry.

3 Design engineer, 42, BSc in Mechanical Engineering, with experience in managing projects both in-house and subcontracted.

4 Technician, 24, National Certificate in Mechanical Engineering, two years' shop floor experience.

5 Electrical engineer, 50, HNC, long experience in maintenance of high voltage plant.

6 Mechanical engineer, 46, HND, experience in maintenance.

7 Yourself.

a)

SALES ENGINEER

Sinclair is one of the UK's largest private engineering groups, with an international reputation. The sealing systems operation requires a Technical Sales Engineer to sell the world-renowned Chesterfield range of products throughout the Midlands.

You should have previous sales and mechanical engineering experience with a bias to maintenance products and mechanical engineering. The successful candidate will ideally be between 30 and 45 years of age living in the Midlands with a mechanical engineering background. The companyoffer a good basic salary, commission and company car. Apply in writing, with full cv to:

J.FORD

SINCLAIR SEALING SYSTEMS LTD.

16 CANYON ROAD, NETHERTON INDUSTRIAL ESTATE,

BIRMINGHAM B2 OER Closing date 17 December 19—

SINCLAIR

b)

PROJECT/DESIGN ENGINEER

We are a long established medium/ heavy engineering company (Liverpool area) specializing in mechanical handling equipment and require to appoint a project/ design engineer for our busy drawing office. The applicant should be aged between 28 and 40 and must have a sound and practical engineering background. Ideally he / she should be a time served draughts person, capable of running projects from initial concept, through design and detail including to final installation. He /She should have experience in fork truck attachments, lifting beams, and conveyor systems; must be able to work on his/her own initiative and liaise with customers. This is an extremely responsible position with good prospects for further advancement. Please reply in writing with full cv in the first instance to Box 1383, The Herald, Liverpool LI 1QP.

c)

SUBCONTRACT MANAGEMENT

INTERNATIONAL MECHANICAL/ELECTRICAL PROJECTS £NEG AND GENEROUS BENEFITS

John Blair Engineering, part of the Nelson House Group, is a UK and International leader in power and process engineering. Continuing success in gaining new contracts world-wide has resulted in the ongoing growth of our Operations Division. This has created opportunities for additional Senior Subcontract Personnel.

Your prime responsibilities will involve:

- *the award and management of subcontractors working on major turnkey projects;*
- *the administration of change control procedures;*
- *identification of liabilities and risk assessment;*
- *cost forecasting*
- *variation management.*

To be successful in this challenging position you will be qualified to degree level in a Mechanical, Electrical, or Quantity Surveying discipline and have 10 years experience at a Senior level preferably with a large, successful organization. Good communication and inter-personal skills are an essential requirement.

Salary is negotiable at a level attractive to high calibre individuals and in addition to the career prospects you would expect from a Company of our stature, we offer an attractive range of benefits, substantial pension provision, free life assurance, permanent health insurance, and generous relocation expenses where appropriate.

To apply please send a full cv stating current salary to: Planning and Development Manager,

John Blair Engineering Limited, Dumbarton Road, Clyde side, Dunbartonshire G52 1YA, quoting reference number: 86/46/12.

JOHN BLAIR

ENTERPRISE THROUGH ENGINEERING

d)

Senior Electrical Engineer

A MAJOR ROLE FOR A DEDICATED PROFESSIONAL

The Semiconductor UK plant at Knutsford covers over 300,000 square feet, over 100,000 square feet of which is devoted to clean rooms. We are currently investing some $90 million in new equipment and buildings and the upgrading of plant and facilities.

In this high tech environment devoted to the design and manufacture of semiconductors, efficient and effective electrical supply and distribution systems are essential. We now have an opening for a Senior Electrical Engineer to take full responsibility for the management, use and engineering of the electrical supply and distribution on the site. Your expertise will be called upon during electrical enhancement, upgrades, and maintenance work. You will also have a responsibility for electrical safety and energy management conservation.

Qualified to degree level and preferably holding professional status you will have excellent knowledge of and expertise in the design of HV and LV distribution and control systems, gained ideally during your time in a manufacturing and operational/maintenance environment.

This important role carries an excellent salary and generous benefits including free private health care, life assurance, contributory pension scheme, and a progressive relocation package if necessary.

To apply, please write with full C.V. to: Brian Williamson, Human Resources Department, Semiconductor UK plc, Larkspur Industrial Estate, Knutsford WA16 8QT.

>>>Semiconductor UK

e)

Part of the N & S Group, one or me world's major suppliers of automotive components, PREMIER VANDERBILT LTD is a market leader in the manufacture of plain bearings for automotive and general engineering applications.

QUALITY ENGINEER-c.£i6k

Our manufacturing facility at Wycliffe Valley, Bathgate, commenced production in early 1992 and the workforce has expanded rapidly. We now require a Quality Engineer to join us.

Reporting to the Quality Assurance Manager, you will be responsible for ensuring quality related activities are implemented in line with company policies and objectives.

Educated to at least HNC level in mechanical engineering, experience in quality improvement in the automotive industry would be a distinct advantage. A working knowledge of SPC, FMEA, DOE, and problem solving techniques is essential.

Together with an attractive salary the benefits are those which can be expected from a progressive organization. There will be excellent opportunities for career development as the company continues to grow.

To apply, please send a cv stating current salary, to, Stuart P. Alexander, Human Resources Manager, Premier Vanderbilt Ltd, 10 Stone house Road, Wycliffe Valley Industrial Estate, Bathgate, Berks RG202EW.

Closing date for applications is Wednesday 5 January 19— and interviews will be held during January 19—.

f)

MECHANICAL FITTER and PROJECT ENGINEER

FOR MECHANICAL HANDLING

We require young, enthusiastic people in the maintenance department to work in convey ring and specialist machinery for the Glass Container Industry. Applicants should have previous experience working on a shop floor with minimum supervision and be willing to work shifts with overtime. Annual salary will be not less than £13,500.

Please apply in own handwriting enclosing CV to:

Mrs M Ramsay GLACIER GLASS PACKAGING LTD 1 Grayshill Road, Westfield Industrial Estate Bristol BS68 9HQ.

(Only applicants selected for interview will receive an acknowledgement within the next 3 weeks.)

g)

ENGINEERS FOR SALES

c£16,500 + CAR

NEWCASTLE

Whether customers are looking for induction motors or datacomms technology, the engineers who make up our sales team can be confident that the solution is in our catalogue. As the country's leading distributor of electronic, electrical, and mechanical engineering products, we can supply customers with some 40,000 different items—all within 24 hours of an order being placed.

If anything we have even more to offer engineers who would like to build on their expertise in sales. If you hit your targets—and we'll give you all the training you need to ensure that you do—you can look forward to high earnings and opportunities to develop your career further.

You'll visit customers in your area, selling them SB products and services, then feeding the information back via written reports, so you'll need to be able to impress decision makers with your technical ability, deciding priorities and motivating yourself to succeed.

This is a role that calls for proven sales experience and a background in electronic/electrical engineering (HNC essential). Bring us that and we can offer you the environment and scope to achieve your ambitions

All in all, there have never been better reasons to breakout (with or without the box). For more information and application form, please send your full CV quoting ref E530H to Julia Beckett, Personnel Officer, SB Components Ltd, PO Box 26, Retford, Northants NN32 9RS.

SB Components Limited

Task 8 Write your CV and a letter of application for one of the posts advertised in Task 7. You may invent suitable qualifications and experience if you are still a student.

Task 9 Technical reading *Company structure*

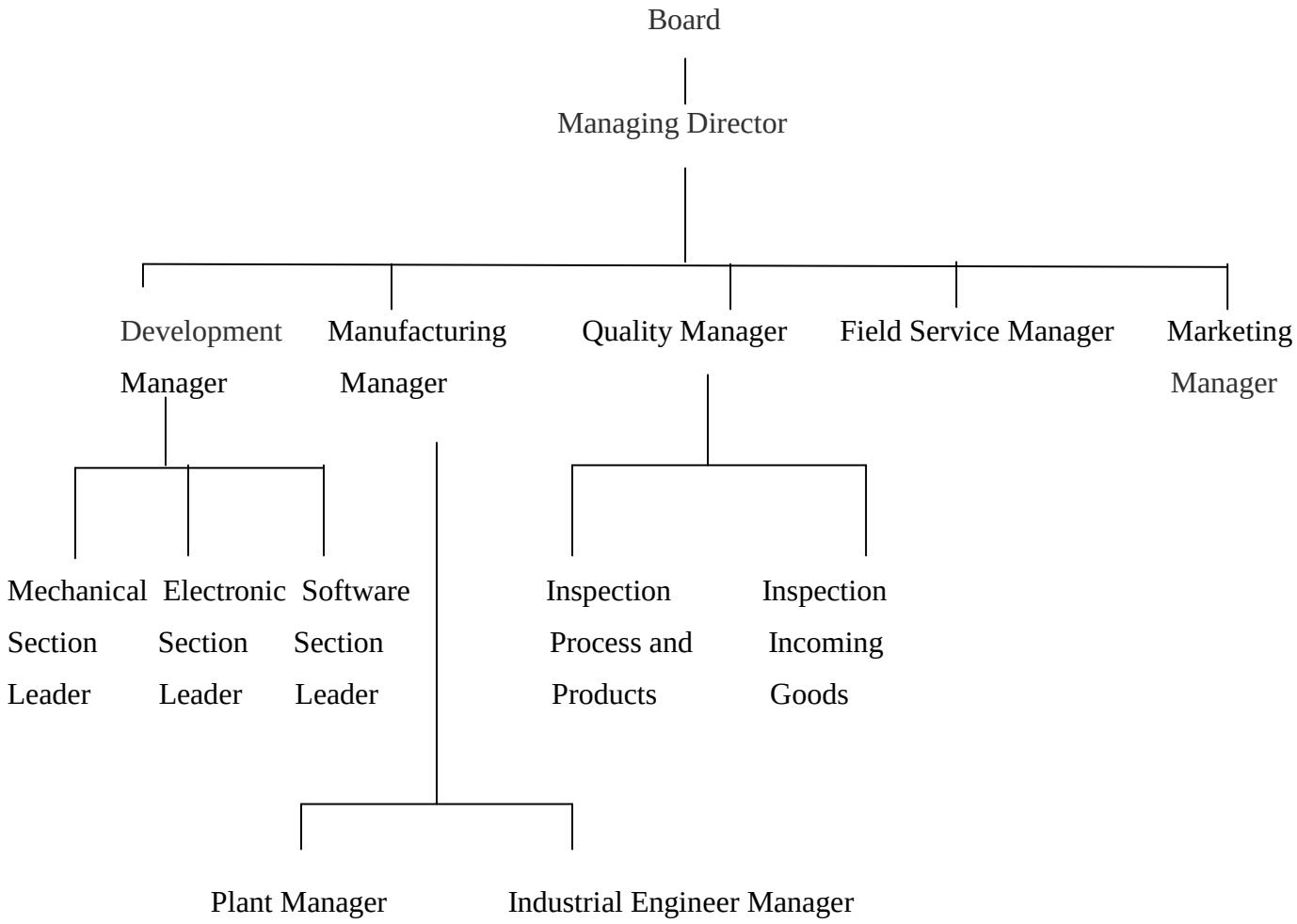

Fig. 1

Complete the blanks in this text using information from Fig. 1.

The head of an engineering company in the UK is the _____or the Chief Executive Officer (CEO). If it is an American subsidiary, the head may be known as the Vice President. Unless the person at the top is the Chairman of the company, or the owner, he or she will be responsible to a _____or, in the case of a US subsidiary, the President. In turn, the Chairman or President is responsible to the company shareholders.

The managers of the various departments which are vital to a company report directly to the Managing Director. These managers may be referred to as the Management Team. They are required to advise the Director on the consequences of any decision made by the Board in terms of costs, personnel materials, time, plant, etc. They also have to brief the Director on any matters which should be taken to the Board for decision.

The_____ with the support of the Mechanical, Electronic, and _____Sections, is responsible for the introduction of new products. The _____decides how the new products will be produced. The _____and Industrial Engineer Manager report to this member of the Management Team.

The _____ensures that the products are fault-free and that the components and materials used in their manufacture meet company standards. The _____handles market research, promotion, and sales. The Field Service Manager is responsible for the installation and maintenance of the company's products wherever required.

The structure shown in Fig. 1 is common to most engineering companies but there can be differences in reporting channels. For example, in some companies the Field Service Department may report through Marketing, through Quality, or even through a separate Product Assurance and Support Group.

Although the company structure shows managers for each separate department, departments are interdependent. For example, the Development Manager would not start the design of a new product without first discussing the project with other managers. The design would not be completed without regular meetings with other departments to ensure that it fitted the customers' requirements, and that cost targets would be met without adversely affecting quality, manufacturability, and serviceability. These meetings would ensure that trained manpower, tooling, documentation, etc., were in place at the correct time for each stage of the product's launch.

Task 10 Read the text again to find the answers to these questions.

1 What is the US equivalent of the Managing Director?

2 Who is the Chairman of a company responsible to?

3 Who comprise the Management Team?

4 In what way might companies differ in structure from the example given?

5 Which department would advise on whether a new product would meet customers' requirements?

ТЕМА: «МЕЖДУНАРОДНЫЕ КОНФЕРЕНЦИИ И ПОВСЕДНЕВНЫЕ СИТУАЦИИ, СВЯЗАННЫЕ С ИХ ПРОВЕДЕНИЕМ»

A VISIT TO A RESEARCH CENTER

EPISODE 1

Bogomolov's visit to the Massachusetts Institute of Technology was scheduled for 9:30the next day. MIT is located in Cambridge, across the Charles River so you can see it from the Boston bank. Rundle called at the Copley Hotel to pick up his friend in his car. They met in the lobby downstairs. Rundle pulled a sheet out of his breast pocket to show it to Bogomolov.

Conversation on the Memo

Rundle: Look. I'd like to introduce you to the memo of your visit signed by the head of the Department Charles Stevenson. I'll first show you around the Institute. That will take an hour, from 9:30 to 10:30. Then I'm taking you around the Department of Electrical Engineering and Computer Science, where I work. We're expecting you for lunch at 12:15.

Bogomolov: Wait a minute, please. Don't speak so fast. I can't follow you.

Rundle: Oh, sorry.

Bogomolov: OK. Go ahead.

Rundle: At 1:15 you are giving a lecture at the seminar for the Department research staff and students. The subject is new materials for high power devices. Is that right? We've announced your lecture under this tide.

Bogomolov: Quite correct.

Rundle*:* And then from 2:30 to 3:15 we're both having an appointment with Professor Stevenson. The talk will last a half an hour or maybe a little, longer. And that's about all.

Bogomolov: Fine. Let's get going.

Exercises and Speech Patterns

You have noticed that the memo lists preplanned events, each scheduled for a certain hour. Preplanned events are usually described with the present continuous tense. Listen to these statements again.

- Then I'm taking you around the Department of Electrical Engineering and Computer Science, where I work. We're taking you for lunch at 12:15. At 1:15 you are giving a lecture at the seminar for the Department research staff and students. From 2:30 to 3:15 we're both having an appointment with Professor Stevenson.

Task 1 Listen to conversation several times.

Task 2 Read the conversation with a partner, imitating the speakers. Trade roles and read the conversation again, making it sound natural.

Task 3 Role play. Work in pairs. Tell your partner, who is a foreign visitor to your laboratory, that you will take him around (show him around) your laboratory; the institute; the University; the department; the city: the Hermitage; the Russian Museum.

P a t t e r n :

A.: I'll take you around the Institute.

B.: Wonderful. Thank you.

Task 4 Role play. Work in pairs. Imagine you are receiving foreign colleague at your Institute, introduce him to the program, pointing out the scheduled events and the time they are scheduled for. Helpful words:

take around; show around; receive; have coffee; have lunch; have an appointment; have a seminar; meet the laboratory staff; give a talk.

P a t t e r n :

-Let's take a look at your agenda for tomorrow. From 10 to 11 I'm taking you around the laboratory. At 11 we're having a coffee break. The laboratory chief is receiving you between 11:30 and 12. At 12:15 you're giving a talk at the Optoelectronics Laboratory seminar. In the evening I'm taking you out to the theater. That's about all, it seems.

- Fine. Sounds very exciting.

Do you remember what Bogomolov said when he found it hard to follow the memo? He interrupted Rundle with:

Wait a minute, please.Don't speak so fast. I can't follow you. And then:

- OK. Go ahead.

In a situation like this you can also say:

- Wait a moment, please. You're speaking too fast for me. (1)
- Sorry. I can't follow you, You're speaking too fast. (2)

And then:

- Keep on, please. (1)

-Go on, please. (2)

- Go ahead. (3)

EPISODE 2

When the two men got into Rundle's blue «Toyota», Bogomolov said he wanted to take a look at the memo. Handing over the memo, Rundle said, "Keep it". The memo looked as follows.

Agenda

Proposed visit of Dr. Bogomolov -5th September 1991, Dr. Bogomolov is a senior researcher at the Ioffe Physical Technical Institute in St.Petersburg, Russia. He will spend half a day at the Department of Electrical Engineering and Computer Science, MIT. His agenda is as follows:

Time		Subject	Guidance
9.3O	10:30	Visit to the MIT campus	M.Rundle
10:30	- 123Q	Visit to the Dep. Electric Eng. and Computer	J.Lerner
12:15	- 1:15	Lunch	M.Rundle
1:15 -	2:30	Seminar	J.Lerner
2:30 -	3:15	Reception	Ch.Stevenson

Exercises and Speech Patterns

Task 5 Study the memo closely. As you read it, note its direct, concise and rather informal language. Read the memo aloud to the others.

Task 6 Role play. Work in pairs. Suppose you are receiving a foreign colleague well known in your research area. Draw up a memo of his activities at your institute. Follow the above framework introducing appropriate changes. When you are ready with the memo, show it to your partner and read his. Exchange opinions on your memos.

GLOSSARY

activities (n) - мероприятия
actually (adv) - фактически
agenda (n) - распорядок дня
admiration (n) - восхищение
announce (v) - объявлять
appointment (n) -деловая встреча, прием ■
appreciations (n) - высокая оценка
arrange (v) - организовывать
aromatize (v) - автоматизировать
back home - у нас (в стране)
back - возвращаться

good at - удаваться, успешно справляться
impressed - находиться под впечатлением
off - уходить
proud of - гордиться
satisfied with - быть удовлетворенным
with - работать в (учреждении)
breast pocket - нагрудный карман
briefcase - портфель, «дипломат»
loose (v) - выбирать
coffee house (n) - кафетерий, кафе
importable (adj) - удобный, уютный
do well - справляться
draw up (v) - составлять (документ)
dream (n) - мечта
effort (n) - сила, усилие
employment (n) - устройство на работу
equipment (n) - оборудование
establish (v) - основывать
event (n) - мероприятие
exactly (adj) - точно, как раз
excellent (adj) - прекрасный
exciting (adj) - интересный, увлекательный
facutt\/(5) - профессорско-преподавательский состав
fast (adj, adv) - быстрый, быстро
feature (n) - черта, сторона
feeling (n) - чувство
follow (v) - успевать, следовать, придерживаться
found (v) - основывать
frankly (adv) - откровенно говоря
fraternity (n) - землячество
freshman (n) - первокурсник
get enrolled in - поступать
get smb. involved - включать в
go ahead - продолжать go
on - продолжать
grant (v) - присуждать (степень)
guide (v) - водить
guide (n) - экскурсовод
guidance (n) - руководство
head for (v) - направляться к
hesitate (v) - стесняться, не решаться
hospitable (adj) - гостеприимный
housing (n) - жилье
imagination (n) - воображение
improve (v) - совершенствовать
incidentally (adv) - кстати, между прочим
introduce to (v) - знакомить с
issue (n) - номер (газеты, журнала)
jealousy (n) - зависть
junior researcher - младший научный сотрудник
keep (v) - держать, сохранять

III. МЕТОДИЧЕСКИЕ УКАЗАНИЯ (РЕКОМЕНДАЦИИ)

Данное УМКД адресовано студентам 3 курса специальности «автоматизация технологических процессов и производств», овладевшим базовой грамматикой и лексикой английского языка.

Цель УМКД – сформировать у студентов навыки и умения различных видов чтения и говорения, развить способность извлекать и интерпретировать информацию, содержащуюся в оригинальных научных и других англоязычных текстах. В УМКД так же уделяется внимание и расширению словарного запаса по энергетическим специальностям.

УМКД ориентировано на 36 часов (1 семестр) аудиторных и самостоятельных занятий, т.е. из расчета одно аудиторное занятие в две недели.

Таким образом, на каждое занятие-тему отводится примерно 8-10 часов.

Отличительной чертой УМКД является его «аутентичность» - т.е. неадаптированность текстового материала. Тексты взяты из англоязычной научно-технической периодики, сайтов Интернета, профессионально-значимых материалов международных научно-практических и методических конференций, представляющих достижения современных ученых. В библиографии приведены ссылки на источники информации, в том числе и сайты Интернета.

Профориентированность УМКД позволяет студентам пополнить знания по основной специальности, создает дополнительные возможности для изучения терминологических особенностей современного английского языка. УМКД соответствует одному из главных программных требований, предъявляемых к курсу иностранного языка в неязыковых вузах, и не имеет аналога.

Отбор текстов по всем разделам базировался на принципе отражения максимально доступного обучаемым смысловом и языковом отношении перечня видов энергии, эксплуатируемых человечеством. Это природные и техногенные источники ядерной энергии, а также солнечной, ветровой, приливной, геотермальной, твердотопливной и т.д.

При выборе текстов для курса дисциплины был проведен анализ содержания как российских так, и зарубежных научно-популярных изданий. Были отобраны тексты которые представляют интерес для студентов, наиболее полно отражают стиль научно технической прозы и дают информативный материал по широкому профилю, расширяющий общетехническую эрудицию студентов.

Речевой материал организован на функционально-ситуативной основе и вводится в форме ситуативно обусловленных диалогов. Дополнительный речевой материал также вводится в виде связных микродиалогов, и его функция состоит в обеспечении языковой вариативности выражений той или иной коммуникативной интенции. Каждая интенция

обеспечивается тремя-четырьмя речевыми вариантами, что позволяет применить адаптивный подход. Это означает, что объем усваиваемого языкового материала может сознательно варьироваться в зависимости от уровня владения обучаемыми английским языком. Все диалоги сопровождаются авторским текстом, в котором сюжетная линия находит последовательное развитие. Авторский текст создает в сознании учащегося необходимый предметно-ситуативный и психологический фон, обуславливающий адекватное речевое поведение. При отборе языкового материала и речевых моделей автор стремилась следовать принципам высокой частотности отбираемых речевых клише и их функциональной значимости для реализации типовых коммуникативных интенций в сфере научного общения. Типология упражнений едина для всех разделов пособия. Акцент делается на введение всего речевого материала через слуховой канал, на его многократном прослушивании и фактическом звучании с пленки. Основным видом коммуникативных упражнений являются ролевые игры в парной работе на занятии. Обучаемым предлагается в основном играть самих себя в типовых ситуациях общения. К каждому разделу прилагаются комментарии и англо-русский словник.

Аудиокурс допускает использование разнообразных методических приемов обучения. В качестве одного из вариантов автор предлагает следующую методику работы над материалом раздела.

Следует начинать с ознакомления обучаемых со словарем раздела. Приемы первичного усвоения слов могут быть самыми разнообразными, но они должны преследовать две главные цели – узнавание слова и его правильное воспроизведение в устной речи. Затем прослушивается авторский текст, предваряющий диалог, и сам диалог. Как диалог, так и дополнительный материал к нему требуют многократного прослушивания с варьированием целевых установок. Так, первое прослушивание - на понимание общего содержания беседы и ситуации, в которой она происходит. Второе прослушивание предназначено для полного понимания и, если необходимо, этой же цели служит третье прослушивание. После того как диалог полностью понят, необходима его запись учащимися. До этого момента они не имеют зрительной опоры на письменный текст. Смысл этого приема состоит в целенаправленном развитии речевого слуха и формировании аудитивных речевых навыков. Второй этап работы над диалогом можно назвать репродуктивным. Он включает чтение вслух диалога по ролям, причем несколько раз, с целью максимально точного воспроизведения речи носителей языка, записанной на пленке. Цель этой работы состоит в совершенствовании произносительных навыков обучаемых, коррекции ошибок произношения и формировании интонационно-ритмических навыков, приближенных к нормативному, естественному звучанию. Помимо

решения перечисленных методических задач, многократное прослушивание и проговаривание текста представляет собой способ заучивания наизусть. Контроль успешности звучания осуществляется при воспроизведении диалога по ролям по памяти. Чтобы заучивание шло успешно, необходимо сначала отрабатывать микродиалоги и дополнительные микровысказывания, переходя к воспроизведению по памяти всего текста.

Выполнение упражнений для ролевой игры основывается на использовании усвоенных речевых клише и их лексико-грамматических вариантов. Учащиеся группы работают попарно, параллельно либо последовательно. Можно ввести элементы соревновательности, а также любые другие приемы, делающие игру приятным развлечением. Проигрывать каждую ситуацию следует несколько раз , чтобы вовлечь всех учащихся группы, однако необходимо вводить элементы новизны, например менять время, место и имена персонажей. Целью многократного проигрывания ситуации является автоматизация речевого материала, закрепление его за данным типом коммуникативной интенции и ситуацией общения.

При самостоятельной работе с аудиокурсом мы рекомендуем удвоить количество прослушиваний и воспроизведения диалогов и дополнительного материала до их полного заучивания. Для развития ваших слуховых и произносительных навыков гораздо полезней работать с пленкой без опоры на текст приложения и записывать текст со слуха самостоятельно.

МЕТОДИЧЕСКИЕ УКАЗАНИЯ ПО САМОСТОЯТЕЛЬНОЙ РАБОТЕ

Особенностью овладения иностранным языком на данном этапе обучения является то, что объем самостоятельной работы студента по выработке речевых навыков и умений равен объему практических и аудиторных занятий. Соотношение аудиторных и самостоятельных часов, отводимых на курс обучения равно 18 ч.: 18 ч. Таким образом каждому аудиторному двухчасовому занятию должно предшествовать не менее шести часов самостоятельной работы студента.

Для того чтобы добиться успеха, необходимо приступить к работе над языком с первых дней обучения в вузе и заниматься систематически.

Самостоятельная работа студента по изучению иностранного языка охватывает: заучивание слов английского языка. Уяснение действия правил словообразования, грамматических правил, чтение текстов на английском языке вслух в соответствии с правилами чтения, понимание текстов, слушание текстов, записанных на магнитофонной ленте, с тем, чтобы научиться правильно произносить и понимать на слух содержание

сообщения; построение вопросов и ответов к текстам; перевод на русский язык (устный и письменный).

Для того чтобы достигнуть указанного в целевой установке уровня владения языком, следует систематически тренировать память заучиванием иноязычных слов, текстов. Надо помнить, что способности развиваются в процессе работы, что осмысленный материал запоминается легче, чем неосмысленный, что навык вырабатывается путем многократно выполняемого действия.

IV. КОНТРОЛЬ ЗНАНИЙ
ТЕКУЩИЙ КОНТРОЛЬ ЗНАНИЙ

В рамках данной Программы используется традиционная система контроля, которая включает в себя:

текущий контроль осуществляется в течение семестра в устной и письменной форме в виде контрольных и устных опросов;

промежуточный контроль проводится в виде проектов. Объектом контроля являются коммуникативные умения во всех видах речевой деятельности (аудирование, говорение, чтение, письмо), ограниченные тематикой и проблематикой изучаемых разделов курса;

итоговый контроль проводится в виде зачета за весь курс обучения английскому профессиональному языку. Объектом контроля является достижение заданного Программой уровня владения иноязычной коммуникативной компетенцией.

Виды контроля (по способу выявления формируемых компетенций)

Устный опрос

Достоинства: позволяет оценить знания и кругозор студента, умение логически построить ответ, владение монологической речью и иные коммуникативные навыки, обладает большими возможностями воспитательного воздействия преподавателя.

Письменные работы

Достоинства: экономия времени преподавателя; возможность поставить всех студентов в одинаковые условия, объективно оценить ответы при отсутствии помощи преподавателя, проверить обоснованность оценки; субъективности при оценке подготовки студента.

Контроль с помощью технических средств и информационных систем

Достоинства: оперативное получение объективной информации об усвоении студентами контролируемого материала, возможность детально и персонифицировано представить эту информацию преподавателю, формирования и накопления интегральных (рейтинговых) оценок достижений студентов по всем дисциплинам и модулям образовательной программы, привитие практических умений и навыков работы с информационными ресурсами и средствами, возможность самоконтроля и мотивации студентов в процессе самостоятельной работы.

Формы контроля

Собеседование - специальная беседа преподавателя со студентом на темы, связанные с изучаемой дисциплиной, рассчитанная на выяснение объема знаний студента по разделу, теме модуля, проблеме и т.п.;

контрольная работа состоит из небольшого количества средних по трудности вопросов, задач или заданий, требующих поиска обоснованного ответа. Может занимать часть или полное учебное занятие с разбором правильных решений на следующем занятии. Рекомендуемая частота проведения – не менее одной перед каждой промежуточной аттестацией;

эссе одна из форм письменных работ, наиболее эффективная при формировании универсальных компетенций выпускника. Небольшая по объему самостоятельная письменная работа на тему, предложенную преподавателем. Цель эссе состоит в развитии навыков самостоятельного творческого мышления и письменного изложения собственных умозаключений. Содержит изложение сути поставленной проблемы, самостоятельно проведенный анализ этой проблемы с использованием концепций и аналитического инструментария соответствующей дисциплины, выводы, обобщающие авторскую позицию по поставленной проблеме;

реферат - краткое изложение содержания научных трудов, литературы по определенной научной теме. Объем реферата может достигать 10-15 стр.; время, отводимое на его подготовку – от 2 недель до месяца. Подготовка реферата подразумевает самостоятельное изучение студентом нескольких литературных источников (монографий, научных статей и т.д.) по определённой теме, не рассматриваемой подробно на лекции, систематизацию материала и краткое его изложение. Цель написания реферата – привитие студенту навыков краткого и лаконичного представления собранных материалов и фактов в соответствии с требованиями, предъявляемыми к научным отчетам, обзорам и статьям;

тест - процедура, ориентирующая испытуемого на выполнение какого-нибудь практического действия (практические испытания);

зачет представляет собой форму промежуточной аттестации студента, определяемую учебным планом подготовки по направлению ВПО.

Темы эссе

1.Альтернативные источники энергии.

2. Автоматизация технологических процессов и производств.

3. Промышленная электроника.

4. Электронная и преобразовательная техника.

Темы рефератов

1. Энергетика: перспективы развития.

2. Устройства автоматической защиты.

3. Устройства автоматического управления.

4. Приборы и устройства промышленной электроники.

Примерные задания для самоконтроля

Примерное содержание теста

1 Pressing… allowing

Press the control lever.

This opens the control valve.

This allows compressed air to enter the drill.

2 … forcing…

The air passes through the valve and down the return chamber to the underside of the piston.

The pressure forces the piston to rise up the cylinder.

3 As … which

The piston rises.

The piston covers the exhaust.

This prevents the air from escaping.

4 At the same time … which

The rising piston starts to compress the air.

The air is trapped above it.

5 …admitting … and closing …

The increase in pressure forces the operating valve to open.

This admits air to the top of the chamber.

This closes off air in the return chamber.

6 As …

The pressure in the chamber increases to 620 kPa.

The pressure forces the piston to strike the chisel.

7 When … and …

The piston passes the exhaust.

The air is released into the atmosphere.

The valve closes.

8 … which … and…

This opens the return chamber again.

This allows the air to pass to the underside of the piston.

This restarts the cycle.

Примерное содержание карточки

Vocabulary:

1.Процесс сгорания

2.Теплопроизводительность

3.Важная роль

4.Технические усовершенствования

5.Растущая важность

6.Поощрять

7.Добыча и переработка газа

8.Приведёт к

9.Стратегия исследования и разработки

10.Электростанция, работающая на традиционных источниках энергии

11.Практический коэффициент полезного действия

12.Важная роль

13.Более низкие цены на топливо

14.Связаны с

15.Природные ресурсы

16.Признание

Темы сообщений, презентаций и дебатов

1.Автоматический контроль.

2.Полупроводниковые приборы.

3.Эффективность автоматизации.

4.Автоматические системы (структура, свойства и т.д.).

5.Принципы автоматики.

6.Контрольные измерительные приборы и автоматы.

Примерные задания к зачету

CREDIT TEST

Task Make the rendering of the article.

WIND AND SOLAR ENERGY TO REPLACE OIL AND GAS?

Because Russia's oil and gas reserves will have been depleted in the not too distant future, we must begin to develop alternative sources of energy now

By Natalya Alyakrinskaya

THE MOSCOW NEWS

At the summit of G8 energy ministers held in mid-March in Moscow, Russia's majestic bearing was due to its status as a global supplier of hydrocarbons. It will not enjoy this status for long, though. According to estimates by analysts, Russia's explored oil reserves will last 30 to 40 years; its gas and coal reserves, 100 years. Meanwhile, countries less lucky with natural fuel resources have launched an all-out effort to develop alternative sources of energy. Russia has yet to hammer out development strategy regarding these sources. But it had better do so soon.

Excessive Oil Production

Drug addicts say that if you have an abstinence syndrome, you live for the moment. That's the way Russia is living, having been hooked up on the oil drug. Last year, it produced 470 million tons of oil, thereby exceeding the output ceiling set in its energy strategy for the period to 201C. According to estimates by scientists, given the amount of Russia's oil reserves, it could well do with 370 million tons.

Excessive oil production in Russia is a result of ruthless exploitation of its underground resources. Gennady Shmal, president of the Union of Russian Oil and Gas Producers, admitted in an interview with *MN* that the production of "black gold" in this country is practically uncontrolled. He said that each oil company must submit to the Natural Resources Ministry a draft project for the development of the deposit concerned, and the draft must specify the oil output planned by the company. Naming the output figures, however, is a pure formality. In reality, the majority of companies "lacerate the deposit," as oilmen put it. Shmal said: "Twenty years ago, if anyone violated the targets of the deposit development project, he would be fired or even put on trial. Today, oil production and output are not controlled."

Hence the entailing woes. The biggest of these is the so-called oil recovery factor, which is very low in Russia, constituting 0.3 at most. This means that extraction leaves 70% of the oil in the subsoil. According to Gennady Shmal, if Russia raised the factor to the American level of 0.4, this would be tantamount to opening several large deposits equal in size to the vast Samotlor

field. This effort, however, would require new technologies, and most important, the vested interest of oil producers. Thus far, they don't seem to be interested at all. In the oil fields of many companies, a great many wells sit idle. In Sibneft's fields, for example, more than 50% of the wells are idle, Shmal says.

To be sure, East Siberia is still practically unexplored. Even West Siberia, currently Russia's chief supplier of oil, is no more than 40% tapped. Yet geological prospecting is deplorably inadequate. The state has slightly increased funding for it (having allocated nine billion rubles or so), but experts say 10 times as much is needed.

The Natural Resources Ministry appears to have opted for a different path. In early March, it submitted to the government a draft strategy to explore and develop Russia's continental shelf in the period to 2020. On the shelf today, about 20 large oil deposits have been discovered, such as Shtokmanovskoye, Rusanovskoye and Leningradskoye in the Western Arctic, and several segments on Sakhalin's northeast shelf. The Natural Resources Ministry, headed by Yury Trutnev, has calculated that recoverable oil reserves on the shelf total 13.5 billion tons; gas reserves, 73 trillion cubic meters. To exploit these reserves will cost the state around 33 billion rubles, and the overall payback on the investment will be 3.2 trillion rubles. All that will happen before 2020. What will happen next?

State Aid Essential

After 2020, we will be left with the eternal sun, oceans, and winds — renewable sources of energy. They have been the subjects of study in Russia for some 100 years, but these studies have produced no practical results. When energy supplies became centralized, micro and mini hydro-power stations — which used the flows of small rivers and at one time saved the remote areas in Russia's south from dire straits — have all but disappeared. And thermal energy turned out by solar energy collectors is used only in sanatoria in Krasnodar and Stavropol Territories. The sun is not the only ignored source of energy. A nation with abundant oil and gas also fails to utilize the unique northerly winds, which possess tremendous potential as generator of electric power.

For example, Kola Peninsula's sole wind energy system, with a capacity of 200 kilowatts, is located near the Lights of Murmansk hotel. Four years ago, local scientists installed it in the city of Murmansk (on funds from Norway) to demonstrate the efficiency and profitability of wind "energy systems and the feasibility of their wide-scale use in the Murmansk Region and in the country as a whole. Thus far, however, only the Murmansk hotel appreciates the usefulness of its wind energy system, which generates all the electricity it needs.

Valery Minin, head of the laboratory for nontraditional renewable sources of energy at the Kola Research Center of the Russian Academy of Sciences, believes that wind-power

engineering can really become relevant in our time. He says: "Fuel is becoming more and more costly, and energy tariffs are going up all the time. The Kola Nuclear Power Plant outlived its service life back in 2004. Therefore, it's high time we set up wind energy parks, like those in Germany, Denmark, and Spain. As for the versatility of the winds, the peninsula has 17 hydro-power stations to take care of that."

"That's the way it should be done — the alternative energy system should complement rather than replace the mainstream energy system," affirms Semyon Vainshtein, department head at the Moscow State University of Engineering Ecology. At present, alternative sources of energy cannot compete with the traditional ones in price: A kilowatt-hour of electricity generated by a wind or solar power system costs $600 to $1,000. That's too expensive a luxury. In the West, such projects are state-funded. Vainshtein explains: "As long as oil and gas are cheap in our country, people find it very hard to develop alternative sources of energy. If you have a permanent hot water supply at home, naturally you won't need a solar collector on your balcony. People's attitude would be different if there were heat and gas meters in every home, with everyone counting how much to spend on these utilities."

V. ИНТЕРАКТИВНЫЕ ТЕХНОЛОГИИ И ИНОВАЦИОННЫЕ МЕТОДЫ ИСПОЛЬЗУЕМЫЕ В ОБРАЗОВАТЕЛЬНОМ ПРОЦЕССЕ

Интерактивные технологии, применяемые в учебном процессе:

Технология стимуляции реального общения на иностранном языке – студенты должны уметь решать реальные коммуникативные задачи, которые возникают на уроке ИЯ в процессе реального общения «студент- преподаватель», «преподаватель- студент», «преподаватель- студенты», «студенты-студент», «студент- студенты» (поздороваться, попрощаться, поблагодарить за помощь (урок), поздравить с праздником, уточнить информацию и т.п.)

Групповой и индивидуальный методы работы со студентами. Групповой метод обеспечивает участие в работе каждого студента и предполагает вариативность участия в работе студентов с различной степенью речевой активности и инициативности. Индивидуальный метод заключается в раскрытии личностных возможностей обучающихся: их качеств, уровня языковой подготовки, умения самостоятельно включаться в процесс общения, управлять ситуацией общения.

Технология проблемного обучения и воспитания – направлена на обеспечение целостного многоаспектного развития личностных качеств студентов; опирается на принцип научности, креативности, вариативности; усиливает мотивацию к познавательной деятельности, способствует глубокому пониманию.

Информационно-компьютерные технологии реализуются в дидактических схемах компьютерного обучения на основе диалога «обучаемый-компьютер» с помощью различного вида обучающих программ (информационных, тренинговых, контролирующих и др.)

Технологии сотрудничества – современный подход к обучению иностранному языку подчеркивает важность сотрудничества студентов и преподавателя и их взаимодействия как мотивирующего фактора.

Тестовые технологии направлены на определение не только ЗУНов, но и компетенции, т.е. предполагает не только выбор правильных вариантов ответа, а включает в себя творческие задания (анализ текста и т.п.) и могут проводиться на всех этапах обучения и служить для промежуточного и итогового контроля.

Диалоговые технологии - форма организации и метод обучении, основанный на диалогическом мышлении во взаимодействующих дидактических системах

Дискуссия – один из эффективных интерактивных методов познания и нахождения истины (дискуссия диспут, прогрессивная дискуссия, дискуссия – соревнование)

Технология аудиторной дискуссии (круглого стола, конференции, собрания) – коллективное обсуждение какого-либо вопроса, проблемы или сопоставления информации, идей, мнений предложений. Цели дискуссий – обучение, тренинг, диагностика, изменение установок, стимулирование творчества. *Темы дискуссий – проблемы морали, семейных отношений, политики, науки техники и др*.

Игровые технологии – дидактические системы применения различных игр, формирующих умения решать задачи выбора на основе альтернативных вариантов.

Интеллектуальная игра - средство, формирующее не только интеллектуальное развитие, но и коммуникативные умения, и навыки, личностные и профессиональные качества человека. Она разрешает трудности межличностного и межгруппового общения; создает благоприятный психологический, в ней разрешаются какие-либо жизненные проблемы, закрепляются свойства, качества, состояния, умения, навыки, способности, необходимые личности для выполнения социальных, творческих и профессиональных функций.

Ролевая игра - это речевая, игровая и учебная деятельности одновременно; самая точная модель общения, так как она подражает действительности в самых существенных чертах и в ней переплетается речевое и неречевое поведение партнеров. Ролевая игра способствует расширению сферы общения, предполагает предварительное усвоение языкового материала в тренировочных упражнениях и развитие навыков, которые позволят учащимся сосредоточиться на содержательной стороне высказывания.

Контролируемые игры на основе диалога или текста. В первом случае обучаемые знакомятся с базовым диалогом и отрабатывают его: обсуждают содержание диалога, прорабатывают нормы речевого этикета и необходимую лексику; составляют свой вариант диалога. Вторым видом контролируемой ролевой игры является игра на основе текста. В этом случае после знакомства с текстом предлагается студентам сыграть роль какого-нибудь персонажа из текста, а другим - взять у него интервью. Студенты - репортеры могут задавать не только те вопросы, ответы на которые есть в тексте, но и любые другие, проявив свою фантазию. Задача таких игр - достижение намеченных целей путем «погружения» в среду, приближенную к условиям реального функционирования рыночной экономики.

Проектная технология обучения в условиях компетентностного подхода - «позволяет формировать некоторые личностные качества, которые лишь развиваются в деятельности и не усваиваются вербально». Предлагается использовать различные варианты индивидуальных и групповых проектов и путей их реализации. Готовясь к студенческой научной конференции и работая над межпредметными проектами, студенты овладевают технологией проектов в деятельности: определяют цели, задачи, гипотезу исследования, планируют этапы своей деятельности и обсуждение возможностей использования опыта в других ситуациях. В результате, проектная методика позволяет создать естественную среду для формирования компетентностей будущего специалиста.

МОДУЛЬ 1

Дискуссия: «Renewable Energy Sources- Future Sources of Energy»

МОДУЛЬ 2

Круглый стол: «Automation of Technical Processes and Production»

«Automation Technician»

МОДУЛЬ 3

Ролевая игра: «Applying for a Job»

МОДУЛЬ 4

Конференция: «Presenting a Paper at the Conference»