PETER J. ROBINSON: LOOKING BACK ON LIBYA: LSP AND SYLLABUS DESIGN

Introduction:
This article presents the final version of a course for Libyan Engineering students, which was partially described in two earlier LSP Newsletter articles. Course design is a theoretical activity which aims to be of practical use to those who teach and learn within the environment created, in part, by the framework a syllabus provides. In fact I think the analysis of needs on which the course is based may or may not be "correct", but what is of overriding importance is that the framework should be "convincing" enough to provide both learner and teacher with a sense of the relevance of the teaching situations - in part created by the contrived syllabus - to their own purposes as learner and teacher. In short, a syllabus is a confidence trick which aims, by measuring the abilities and expectations of teacher and learner against each other, to keep both parties happy and convinced that they are engaged in a worthwhile enterprise.
Now this is a mildly surprising assertion; that the analysis of needs is less important than the need to "convince" the learner and teacher, and that "correctness" as such in the analysis is an illusion created to capture the confidence of those engaged in the learning enterprise. It is less likely to provoke now, though, than it would have been a few years ago when the belief in needs analysis in LSP course design was at its peak. But the shift of emphasis in ESP from the language to the quality of the learning process in which it is used is one which has taken place steadily, and conclusively in recent years. It is analogous to the debate on the "authenticity" of the language presented to learners. There were those who believed that ESP was characterised by its ability to make use of "authentic" data, and those who took the slightly different view that "authenticity" was a quality that characterised the user's "engagement" with the language, and that ESP differed only marginally from other learning situations by having ready-made "contexts" available which could "authenticate" the developing skills and strategies of the language learner. This is my own position too - that ESP is characterised by the availability of contexts which are seen by students to be relevant and therefore motivating, and which we must focus our pedagogic "contrivances" on, so as to maintain co-operation and conviction. It seems to me a syllabus can never "ensure" learning will take place, by being "correct" in its analysis, but it can "prevent" it by failing to provide a framework which appears purposeful and focussed.

I hope that the syllabus I wrote, and the framework it created, for learning and teaching in Libya met those requirements. In the first part of this article I present my rationale - my assessment of the relevant needs and learning purposes the students had. I then present diagrammatic schemas to show how the various components fit together. Finally I present sample breakdowns of the first few units, and some materials that were used in these units.

The view I have put forward here is that course design is, ultimately, more "artful" than "scientific". With so many variables this is almost inevitable. It doesn't mean, though, that the effort to meet needs, and work within the limitations of situation, or methodological expectations, should be any less an effort than it would be in situations where the variables could be more closely controlled. For if the syllabus is slapdash, and, crucially, "unconvincing" it will fail to create the confidence essential to mutual co-operation in learning. Alternatively, if it is too grand a design, implying a methodology more appropriate to a different context and culture, it will appear as did the statue of Ozymandias to Shelley's "traveller", strange, coldly commanding, and gladly abandoned.
COURSE RATIONALE

1. Background to the course design.

1.1 At the Higher Institute of Electronics in Libya we operated an English course for B.Sc. students of electronics. Aware of the unsuitability of a previous first year general English course supplemented by "scientific" content from various coursebooks, we decided to draw up a syllabus and write materials for the students which catered, in as comprehensive and as precise a way as possible, for the students' needs.

The course presented here was considered to be a necessary prerequisite to further study in the first year of the B.Sc. course. I would like to contextualise this course and show it in relation to the schema we devised for the whole of the first year, as it was seen by us as an essential "servicing" preliminary.

1.2 As the language of instruction and examination at the Institute was English we soon decided that the main needs of the student were the ability to follow lectures, participate in seminars, write laboratory reports and use appropriate language for functions such as instructions, reports, advising and questioning. At the same time we wanted to introduce lexis and structures grouped around certain notions - movement, measurement, shape, position. These last considerations formed the basis of a core course similar to the Nucleus General Science course 1 and the ELTDU Basic English for Science course 2 but incorporating material drawn from the students' own subject areas and lectures. To supplement the core course we felt a discrete course in technical and laboratory report writing was necessary as the students were expected to produce their first written reports at about the beginning of the seventh or eighth week. The course presented here would occupy the first four weeks of the first year. In the absence of any pre-sessional English course at the Institute we felt it would be necessary to give immediate support to students without previous experience of listening to lectures, taking part in seminars and tutorials held in English, and taking notes on these.

1.3 Although the students had a fairly thorough knowledge of the clause and sentence structure of English after five years studying English in school with Arabic schoolteachers, they were very uncertain about discoursal features of spoken and written English
and had little or no experience of listening to extended stretches of spoken English, or of the particular discoursal and functional features of tutorials, seminars and lectures. We felt the situation to be similar to that described by WIDDOWSON. "The situation is, then, that the student has some knowledge of English usage and some knowledge of how his own language is put to use in scientific discourse. The task for the teacher of EST is to relate these two kinds of knowledge, to convert usage into use by reference to the student's existing communicative competence in his own language. ... (his) ... first objective is to change the student's concept of English from that which represents it as a separate set of facts about words and sentence patterns and grammatical rules to that which represents it as a means of communication similar in nature to his own language."

1.4
With reference to the situation presented above, this course is intended to draw on the students' passive knowledge of English structure and develop an awareness, through the use of subject specific material, of the communicative value of the language. The aim of the course is to improve communication in other subject areas and to provide support for students by providing practice in the skills areas of listening to lecture, seminar and tutorial discourse and taking written notes on this. The course is thus both goal and process needs orientated, providing the students with the restricted competence necessary to effective study in the first few weeks of their degree course and providing the basis for further improvement of linguistic skills necessary to successful communication after the course has ended.

2. Analysis of encoding, decoding problems faced by the students.

2.1
Like the students at KAAU described by CANDLIN and MURPHY (1979), the students in Libya have to be trained in a complex task: to receive verbally and visually transmitted messages in lectures, to decode and memorise parts of it after reception, to relate new to given information and then re-encode and write down the information they wish to preserve in notes. Often lectures are accompanied by notes on the blackboard or in handouts, but not always, and these represent only a skeleton which is fleshed out during a lecture or seminar. This task, then, draws on all the four primary skills areas referred to by CORDER as "epiphenomena", indicating the difficulty of making absolute distinctions between different skills areas. With this in mind we decided that an integrated skills approach weighted heavily in favour of listening and note-taking would be most suitable. As CANDLIN et al (1978) say in writing about their own analysis of study skills in English, "In our analysis of study skills and how these relate to linguistic skills we have proceeded from the reasonable assumption that any one study situation requires more than one "linguistic skill". In other words, we maintain that the lecture, seminar or private study situation will require the student to employ more than one linguistic skill."
2.2
The nineteen units comprising the course presented here have as their focus a piece of spoken discourse which approximates as closely as possible to the actual discourse that students will be exposed to in the study areas indicated in 1.03. An attempt has been made to define the most useful functional areas and to present these successively throughout the course (see fig. 1). I am aware that transfer of the sort discussed by PRICE (1978) would be bound to occur from the functions presented in the context of seminar, lecture, etc. to more general communicative interactions. "... in other words play an active part in general acts of communication whether these be geared to a seminar situation or not. If this is so then this language might usefully be taught as part of the wider area of "language for discussion purposes". What we are really saying to the student is - if you feel the urge to jump up and challenge some statement at some point in the day, whether it be in the seminar or not, here's the language to do it with." I feel this point to be important and see the carry over from this course to the later core course to be of great value to the students.

2.3
With respect to the exercise types and their relation to the perceived problem areas in listening to lectures as identified by JAMES (1975) these are decoding, comprehending and taking notes, and like JAMES, JORDAN and MATHEWS (1978) I have used these three headings in describing the skills activities to be included in each unit. I have added oral work as I see a continuous drift up through the skills areas described above to the students developing communicative abilities with precisely the effect discussed by PRICE above (2.2). The oral reconstitution of notes that ends each unit should be seen as a form of on-going criterion referenced testing as distinct from the discrete item testing which takes place at certain intervals in the course. (See fig. 3 and 3.3 below).

3. Explanation of diagrams.

3.1
The information given above can be summarised in the form of three diagrams. Figure 1 shows the hours of study given to each mode; the topics covered by each unit and the functions presented in each unit. An attempt has been made to specify the functions most likely to be of use to students in a particular mode, e.g. indicating certainty and uncertainty are felt to be more appropriate to classroom announcements or tutorials than lectures where there is much less opportunity, if any, for doing this. In lecture situations which tend to be uninterrupted extended monologues it is more useful to be able to distinguish personal from shared opinions as stated by the lecturer, or to distinguish the introduction of main from subsidiary points. The units have been graded in terms of a developing complexity in the encoding, decoding tasks referred to in 2.1 above. For example I consider the job of student in listening and note-taking in a lecture to be
more complex than in a tutorial. The units are therefore graded in terms of the amount of note-taking required and progress from jotting down one or two words, through note-taking frames to free note-taking exercises in lectures.

3.2
Figure 2 shows the skills activities and the component exercise areas. Across the top the units have been numbered so that if you read down the column for Unit 3 you can see it deals with phoneme discrimination (/p/ /b/), stress and intonation; dictation; true-false, multiple choice, blank-filling, information transfer; abbreviation and symbols, headings, guided note-taking frames and finally oral work; - reconstitution of notes and practice of functions presented. Of the particular skills areas chosen, phonological exercises, particularly in determining stress and intonation, are assumed to be important in understanding the development of spoken discourse (see BRAZIL, COULTHARD & JOHNS 1980). Of course awareness of stress would bear directly on such comprehension activities as identifying repetition and this in turn would directly affect such note-taking activities as underlining or writing headings which demonstrates the interrelatedness of the skills areas and the consequent need for the integrated skills approach adopted here.

3.3
The final diagram, figure 3, shows the place of testing in the course. 1-hour tests in note-taking, comprehending, and decoding activities take place after 20, 45 and 65 hours, followed by a two-hour test after 95 hours. At the top of the diagram the drift upward to increasing communicative ability in oral work referred to in 2.3 above is shown. The reconstitution of notes in oral work thus becomes a form of continuous criterion referenced testing.
<table>
<thead>
<tr>
<th>Hours of study</th>
<th>Mode</th>
<th>Topic</th>
<th>Course unit</th>
<th>Language function</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Classroom announcements</td>
<td>Timetables</td>
<td>1</td>
<td>Indicating certainty.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Adding to classlists</td>
<td></td>
<td>Expressing agreement and disagreement.</td>
</tr>
<tr>
<td>10</td>
<td>Tutorial</td>
<td>A personal tutorial</td>
<td>2</td>
<td>Indicating uncertainty.</td>
</tr>
<tr>
<td>10</td>
<td>Tutorial</td>
<td>Electrical Circuits Sem.</td>
<td>3</td>
<td>Asking polite questions.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Math. Seminar</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Electrical Engineering Lecture</td>
<td>5</td>
<td>Giving shared opinions.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Computer Programming Lecture</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Computer Hardware</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>Lecture</td>
<td>The 'Green Book'</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Physics</td>
<td>7</td>
<td>Interrupting to make a point.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Workshop Safety</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Physics</td>
<td>8</td>
<td>Giving an explanation.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Physics</td>
<td>9</td>
<td>Getting someone to explain more fully.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Maths</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**FIGURE 1.**
### INTEGRATED SKILLS ACTIVITIES — COMPONENTS:

**A) Decoding**
- a) phoneme discrimination
- b) stress
- c) intonation
- d) weak forms
- e) consonant clusters
- f) linkage
- g) contraction
- h) dictation exercises

**B) Comprehending**
- i) true-false questions
- j) multiple choice questions
- k) blank filling exercises
- l) information transfer
- m) identifying repetition
- n) prediction

**C) Note-taking**
- o) abbreviation + symbols
- p) headings
- q) underlining
- r) guided note-taking exercises
- s) sequencing
- t) free note-taking

**D) Oral work**
- u) reconstitution of notes + diagrams
- v) practice of functions

<table>
<thead>
<tr>
<th>UNITS:</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
<th>16</th>
<th>17</th>
<th>18</th>
<th>19</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
REFERENCES:


See also Robinson"Relevance and contrivance - aspects of developing listening comprehension materials for a first year B.Sc. course in English for electrical engineering", UNESCO-ALsed LSP Newsletter 7:1, 1984, (10-14).

UNIT BY UNIT BREAKDOWN, UNITS 1-6

UNIT 1

Topic
Changing the timetable.

Objective
To enable students to recognise and produce expressions of certainty and to understand and make required changes to a timetable.

Aids
Tape and associated worksheets; authentic timetables.

Key language items
Functions: expressing certainty.

I'm sure that . . .
I'm certain/positive . . .
I've no doubt that . . .

Lexis: period; timetable; particular subjects and their abbreviations - Workshop Technology (Wshp Tech.), Computer programming (Comp. Prog.), Physics Laboratory (Phy. Lab.), Maths tutorial (M.T.), Maths lecture (M.L.), English (Engl.); note-taking forms & +.
Skills activities
Decoding: marking on stress, short forms, dictation.

Comprehending: identifying repetition (of important information), blank-filling, true-false questions.

Note-taking: using timetable abbreviations, writing down lesson times, adding and cancelling information on a timetable.

Oral work: reconstitution of notes in oral interaction, further practice of functions in group and pair-work.

UNIT 2

Topic
Reading out a class-attendance list.

Objective
To enable students to recognise and produce expressions of agreement and disagreement and make required changes to a classlist.

Aids
Tape and associated worksheets; authentic classlists.

Key language items
Functions: expressing agreement & disagreement.

That's not right - that's right
I agree/disagree with that
You're wrong there/right there
I (don't) think that's quite right

Lexis: agree, disagree, present, absent, therefore, because, attendance, note-taking forms . . . , x , . . .

Skills activities
Decoding: identifying weak forms, dictation and Cloze exercises.

Comprehending: prediction exercises, true/false, multiple choice and completion of diagrams.

Note-taking: adding and crossing names off a classlist, making notes of new class members.

Oral work: reconstitution of notes in oral interaction, information transfer activities in group and pair-work, further practice of functions.
UNIT 3

Topic
Attending a tutorial.

Objective
To enable students to recognise and produce expressions of uncertainty and to make notes on what the teacher suggests about a diagram.

Aids
Tape and associated worksheets; diagrams of electrical circuits.

Key language items
Functions: expressing uncertainty
I'm not so sure ...
Maybe, perhaps ...
It could be, I'm not certain ...
Well, I don't know ...
It might

Lexis: battery, cell, circuit, electrical, positive, negative, and how to use... tutorial.

Skills activities
Decoding: identifying /p/ and /b/, dictation and Cloze exercises, marking on stress and intonation.

Comprehending: identifying repetition of unimportant information, true/false, multiple choice and blank-filling exercises, completion of diagrams.

Oral work: reconstitution of notes and description of diagrams in oral interaction, further practice of functions in group and pair-work.

Note-taking: use of headings to indicate main ideas, using a note-taking frame, using symbols for battery and cell.

UNIT 4

Topic
Asking questions in the tutorial.

Objectives
To enable students to recognise and produce ways of asking questions and to make notes on answers given by the teacher.

Aids
Tapes and accompanying worksheets; an electrical circuits lecture handout.

Key language items
Functions: asking questions, eliciting information.
Is it true that ...?
Do you suppose that it ...
Could it be ...
What do you think ...?

Lexis: reference, bibliography, heading note, use of n.b., ?, -
in note-taking.

Skills activities
Decoding: use of short forms, intonation transcription.

Comprehending: prediction exercises, blank filling and multiple
choice, completion of diagrams.

Oral work: reconstitution of notes and completion of diagrams
following oral descriptions, further practice of functions in
group and pair-work.

Note-taking: use of given abbreviations, using note-taking
frames, underlining important phrases.

UNIT 5

Topic
An Electrical Circuits Seminar

Objective
To enable students to recognise and produce ways of giving per-
sonal opinions and to make brief notes on them.

Aids
Tape and associated worksheets; pictures of front and back covers
of science textbooks.

Key language items
Function: giving a personal opinion.

I think that ...
In my opinion ...
My own feeling is that ...

Lexis: title, author, publisher's description; use of =, -
in note-taking.

Skills activities
Decoding: identifying /g/ and /k/, exercises on linkage and intona-
tion, recognition of tone units and tone unit boundaries.

Comprehending: Cloze and blank filling sentences, true/false and
multiple choice questions, completion of diagrams.

Oral work: further practice of functions, reconstitution of notes
in group and pair-work.
Note-taking: making notes of book titles, authors, using given abbreviations, writing in note-taking frames.

UNIT 6

Topic
In the Maths Seminar.

Objective
To enable students to recognise and produce ways of expressing shared opinions and to indicate groups of ideas using brackets, and by underlining items of importance.

Aids
Tape and associated worksheet; seminar summary sheet or abstract of main points.

Key language items
Function: expressing a shared opinion.

There seems to be no doubt here
I think we all agree that ... 
What we are saying is ...
Our opinion is that ...

Lexis: results in, leads to, bracket, underline, opinion, doubt, using ......, ____ , { }, (), [ ].

Skills activities
Decoding: identifying /v/ and /f/, exercises on contractions and intonation transcription, marking on stressed syllables.

Comprehending: identifying repetition of important information, blank filling, true false questions.

Note-taking: use of ...... to indicate slightly interesting or relevant information, ____ for more interesting and _____ for important information. Use of guided note-taking frames.

Oral work: further practice of functions in pair or group work, reconstitution of notes.
Some Materials for Unit 3

ATTENDING A TUTORIAL. Unit 3.

Extract A.

Worksheet 1.

Listen to the tape twice, then try to answer these questions.
Circle the correct answer, e.g. a

1) The main thing the student wants to talk about is
   a) an essay
   b) a laboratory report
   c) the lecture
   d) an electrical engineering book

2) The student wants to ask questions about
   a) ten things
   b) one thing
   c) more than ten things
   d) two things

3) The student shows the teacher
   a) a book
   b) his notes
   c) a diagram
   d) a photograph

4) The teacher asks the student to mark on the diagram
   a) a pointer
   b) the scale
   c) a magnet
   d) a coil

5) The teacher says the work they are discussing
   a) will be in the exam
   b) won't be in the exam
   c) might be in the exam
   d) isn't important

6) The teacher was
   a) happy to answer the student's questions
   b) angry that he didn't understand the lecture
   c) about to leave and annoyed with the student for keeping
      him waiting
   d) uncertain what the answers were to the questions about the galvanometer
ATTENDING A TUTORIAL. Unit 3.

Diagram.

Listen to the tape and try to complete these diagrams.

This is the _________.

This is the Pointer

These are the coil windings

This is the North Pole

This is the South Pole

This is the Galvanometer

This is the _________.

This is the _________.

- - +

- - - - +

- -
Worksheet 2. Unit 3.

**Note-taking**

Complete the student's notes.

**Tutorial with Dr. Johnson.**

2 things

1st

a) battery has ________________

    ______ e.g.

b) _______________ two lines.

    ______ e.g.

2nd

a) diagram of ________________

    it measures ________________

b) Mark positive and

    ___________________________

    on diagram.

c) Might be ________________
ATTENDING A TUTORIAL. Unit 3.

Extract A. Transcript.

T: Hello.
S: Ah, excuse me, do you think I could have a word with you please.
T: Yes, O.K., come in.
S: Well, it's just that there's two things em that I didn't quite understand in the lecture.
T: O.K. ...
S: Im it's these ...
T: What are they ...
S: ... diagrams here on this diagram where it's got the two long lines.
T: Mm.
S: In the middle ...
T: Yes.
S: ... and two shorter lines and then a positive and a negative like that, em I wasn't so sure what it was.
T: Well, that's a battery.
S: That's a battery. I see yeh.
T: Yes, that's a battery.
S: Well, that's a battery, I thought it might be a battery but then I thought maybe it was a cell.
T: Mm.
S: So.
T: No, that's the cell.
S: This one with two lines is the cell.
T: Yes.
S: O.K. so the three, two big, two and small lines is the battery and then there's the cell. Right.
T: Hmm.
S: Right, and the other thing, this diagram about the emm galvanometer.
T: Yes.
S: Em, I wasn't so sure what it does.
T: Oh well, it it em measure the amount of current that flows through a circuit. Let me have a look at your diagram. Yes er... I thought perhaps you hadn't written this down. Look at the bottom here, can you mark this on; this is the negative terminal.
S: Yeh.
T: It's on the left, on the right.
S: On the right, negative.
T: Negative terminal.
S: Terminal.
T: And on the left, the positive terminal.
S: Positive terminal.
T: Yeh, and at the top here ...
S: O.K. ...
T: Can you write down ... the scale.
S: The scale.
T: Hmm hm.
S: At the top here.
T: Yeh.
S: Hmm hmm.
T: Y.. that's where they measure the current.
S: I see.
T: A.. against the scale.
S: Well, are these two things going to be in the exam.
T: Oh, I don't know err ... they might be ... but I can't tell you, you know, I can't tell you what's in the exam.
S: So, yes, O.K., right well, I think that's all for the moment.
T: S .. er .. nothing else.
S: No, that's it then tha...
T: O.K., bye bye ...
S: Bye bye.
AN ELECTRICAL ENGINEERING LECTURE. Unit 11.

Extract A.

Worksheet 1.

Listen to the tape twice, then answer these questions. Put a T for true or an F for false.

1) Any movement of electrons is an electric current. □
2) The movement of free electrons towards the positive end of a body is an electric current. □
3) Conductors provide an easy path for an electric current. □
4) Not all metals are conductors. □
5) Carbon is an insulator. □
6) There is a diagram of semiconductors on the board. □
7) Rubber is a semiconductor. □
Worksheet 2.

Listen to the tape again and complete this table.

<table>
<thead>
<tr>
<th>Conductors</th>
<th>Insulators</th>
<th>Semiconductors</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Good</strong></td>
<td></td>
<td>Germanium</td>
</tr>
<tr>
<td>Copper</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Nylor</td>
<td></td>
</tr>
<tr>
<td>Salt water</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Porcelain</td>
<td></td>
</tr>
<tr>
<td><strong>Poor</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Worksheet 3.

Listen to the tape, then in the voice bubbles write what you think the lecturer says when making these gestures.
AN ELECTRICAL ENGINEERING LECTURE. Unit 11.

Note-taking.

Listen to the tape again and complete these notes on the lecture.

Conductors

An electric current

1st

All metals

i) ________________ good conductor.

ii) ________________ carbon.

2nd

There are no ________________

i) ________________

Semiconductors.

______________ are midway ________________

i) ________________
AN ELECTRICAL ENGINEERING LECTURE. Unit 11.

Extract A. Transcript.

O.K... Em... is everybody ready then... right O.K... em... right, today we're going to talk about conductors, insulators and semiconductors. Em... let me begin by saying that if we connect a battery across a body there's a movement of free electrons towards the positive end here on the board... This movement of electrons is an electric current. All materials can be divided into three groups... em... we can divide it into three groups, according to how readily they permit an electric current to flow... em... Firstly we have conductors, next or secondly we have insulators and then thirdly, finally we have semiconductors... well firstly er, substances which provide an easy path for an electric current... these are conductors... all metals are... conductors, however some of them don't conduct very well. Copper is a poor conductor. Copper's a good conductor, therefore it's widely used for cables. A non-metal which conducts well is carbon. Salt-water is an example of a liquid conductor.

Secondly we have insulators. These are materials which don't easily release electrons - em, rubber, nylon, porcelain and air are all insulators. These are no, no, no perfect insulators. All insulators will allow some flow of electrons, however this can usually be ignored because the flow is so small.

Finally, er we must add semiconductors... er... look here on the board... em... there's a diagram on the board which I want you to... take down... Under certain conditions, semiconductors... allow a current to flow easily but under others they behave as insulators... you can see this on the board. Germanium and silicon are semiconductors... mixtures of metallic oxides also act as semiconductors. These are known as thermistors. The resistance of thermistors falls rapidly as their temperature rises... there therefore used in temperature... sensing devices.
SUPPLEMENTARY BIBLIOGRAPHY:
ROBINSON, P. J., "Developing Awareness of Cohesion in English", ESPMENA Bulletin 18, 1984, (1-7).