Science English
A hybrid-type semi-ESP course

For 1st year undergraduate engineers at Kochi University of Technology

Background
Kochi University of Technology is a public university in Kochi Prefecture, Japan. There are five engineering departments (Mechanical, Civil, Electrical/IS, materials) and a Core Studies Department that provides 1st year students with a foundation in mathematics, physics and languages.

English language education at KUT
KUT English Department offers elective courses from 1st year to Ph.D. The two first year courses, Science English/Science Lab and Reading/Listening I/II each runs for one semester (at KUT each semester is split into two quarters). 1st year courses are part of the core curriculum (which also includes Physics and Mathematics).

Science English - pedagogical rationales
Given the levels of L2 competence among freshmen entering the KUT language program there is a need for a course teaching basic scientific content that will act as a bridging point to more advanced technical academic English courses. Also a need for practical L2 learning activities that will provide motivation for and promote interest in language learning among KUT students.

Science English - syllabus overview
Integrates a 4-skills approach with content based instruction.

- Developed for lower intermediate level EFL undergraduate learners in science and engineering fields.
- Initial language input through instructor presentation; language is then practised by learners hrough text-based, classroom activities in each of the four macro-skills. Language is recycled and reinforced in subsequent units. Text-based activities are supplemented by interactive activities accessed through IPods and a MOODLE CMS website.
- Learners then apply those skills to complete a series of practical individual and small group projects.

Science English - other info
- Groups: ~35 (mixed M/F 1st year engineering undergraduates).
- Schedule: 30 x 60 mins classroom sessions (50% classroom/50% language lab).
- Assessment: Typically 6 x paper-based unit tests; 4 projects; presentations.

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01. Syllabus

Unit 1. Describing People & Places
- Personal profiles
  Hometown profiles

Unit 2. Numbers & Units
- Ordinals, decimals, fractions and percentages
- Common units of measurement
- Symbols
- Product specifications

Unit 3. Describing Appearance
- 1D, 2D and 3D shapes
- Dimensions of objects
- Measurements and estimations

Unit 4. Describing Materials
- Development/use of metals, ceramics, semiconductors, polymers, composites, biomaterials & new materials.

Unit 5. Describing Functions & Use
- Functions, abilities, features and use of machines (robots)

Unit 6. Time, Frequency & Amounts
- Schedules
- Time utilization
- Resource utilization

02. Powerpoint-based content*

Introduction
1. Explanation of course content (focus, goals, procedures and assessment)
2. Learner activities answer key
3. Project #1 guidelines

Numbers & Units
1. Explanation of key unit content; (themes/vocab/ target language structures)
2. Learner activities answer key

Shapes & Measurements
1. Explanation of key unit content; (themes/vocab/ target language structures)
2. Learner activities answer key
3. Project # 2 Guidelines

Materials
1. Explanation of key unit content; (themes/vocab/ target language structures)
2. Learner activities answer key
3. Project # 3 Guidelines

Functions & Use
1. Explanation of key unit content; (themes/vocab/ target language structures)
2. Learner activities answer key
3. Project # 4 Guidelines

Time, Frequency & Amounts
1. Explanation of key unit content; (themes/vocab/ target language structures)
2. Learner activities answer key

* Delivered in class by instructor and also accessible via CMS

03. Textbook-based content

READING:	Match question to answer
READING:	Bill Gates and Steve Jobs biographies & comprehension questions
WRITING:	SVO sentences
LISTENING:	Cloze (Bill Gates and Steve Jobs)
SPEAKING/WRITING:	Information questions
GRAMMAR:	Is or Has?
RESEARCH:	My hometown (Location, Size, Population etc
PROJECT #1	Presentation writing guide

LISTENING:	Chart fill: Numbers, Fractions, Decimals, Percentages
SPEAKING/LISTENING:	Pair Gap activity
LISTENING:	Cloze (Cars in America)
WRITING:	Units of measurement
WRITING:	Measurement questions
VOCABULARY:	Maths symbols
VOCABULARY:	Motion verbs
WRITING:	Making estimations
RESEARCH:	Product specifications

VOCABULARY:	1D, 2D and 3D shapes (adj/noun)
VOCABULARY:	Measurement words (adj/noun)
READ/SPEAK/LISTEN:	Pair gap fill (The IPod: appearance and use) & questions
WRITING:	Estimate or measure (How long is..., how high is etc)
MINI-PROJECT:	Describing the appearance of an object

VOCABULARY:	Match object to material
READING/LISTENING:	(IPod) 'General categories for materials.'
COMPREHENSION:	Materials: True or False?
VOCABULARY:	Objects to material categories
GRAMMAR:	Made of vs made from
WRITING:	Chart. Everyday objects: Shape, colour, size and materials
GRAMMAR:	Combining sentences
PROJECT #2	Presentation writing guide

SPEAKING/LISTENING:	Pair crossword gap-fill (Functions)
READING/LISTENING:	(IPod) Group gap fill 5 robots and their abilities
SPEAKING/LISTENING:	5 robots information chart fill
COMPREHENSION:	5 robots questions
MINI-PROJECT:	(Group) 'Our invention'
LISTENING:	Match description to picture

LISTENING:	(IPod) Cloze 'Jim's daily schedule'
READING/WRITING:	Chart fill (Jim's schedule/ your schedule)
GRAMMAR:	Time prepositions
VOCABULARY:	Cloze (Bill Gates and Steve Jobs)
GRAMMAR:	Questions about routines
WRITING/SPEAKING:	Write questions/Interview partner
READING/LISTENING:	(IPod) Cloze 'Student's mobile phone use'
COMPREHENSION:	Complete pie charts (student's mobile phone use)
MINI-PROJECT:	Mobile phone usage survey
PROJECT #4	Survey presentation writing guide

04. Supplementary content

Science English iPod content

Students use iPods in the classroom to access interactive content and record presentations.

MOODLE CMS Science English page

Students use the CMS during lab sessions to access:

- Science English course handbook
- Instructor Powerpoint lectures
- Project 'how-to' guides
- Example projects
- Grammar/writing guides
- Online dictionary

05. Lab-based projects

Project #1: My Hometown
Students prepare a 10-slide Powerpoint describing their hometown.

Project #2: Product Description
Students prepare a 10-slide Powerpoint describing an object of their choice.

Project #3: Construction Project
In groups, students design, construct one of three devices and write a simple IMRC report.

Project #4: Survey
Students prepare a survey and gather data on the theme of resource use. Then prepare a Microsoft Excel spreadsheet from the data.