

# **Basic Principles in Occupational Hygiene**

## **Notes and Lesson Plans**

### **Day 1**

Times in minutes are approximate and entirely at the discretion of the tutor.

At the introductory level students are expected to have a wide range of abilities and experience. It is anticipated that the breadth and depth of the content may be varied by the tutor depending upon the student's prior learning and experience.

The Introductory Level of the course makes it difficult for students to undertake individual or group work. However the tutor should avoid making the whole course "chalk and Talk". Where possible opportunities should be made for students to interact with the tutor/class. In particular the tutor should:

- Try to draw out the existing knowledge that students have.
- Fill in the gaps in this knowledge.
- Correct any misconceptions.
- Enthuse the students for further learning.

Subjects should be covered in the order they are presented in the manual.

There is scope for bringing some material forward and overlapping it across two days.

## **Lesson plan: Section 1 - Introduction**

Aims: Inform and enthuse the students about the subject and the course

Objectives:

- Define Occupational Hygiene
- Provide an incite into the history of Occupational Hygiene and it's importance in the present

Time (mins)	Activity	Resources
30	Introductions and icebreaker	
60	Lecture by tutor with appropriate interaction with class to determine how much the students already know about the subject. The history section is for interest and scene setting and as such students are not expected to remember the majority of the information but simply get a feel for the evolution of the subject.	PowerPoint

## **Lesson plan: Section 2 – Human Physiology**

**Aims:** To provide a sufficient understanding of Human Physiology that will allow students to engage with other parts of this course (e.g. toxicology) as well as enter further study.

**Objectives:**

- To provide a basic knowledge of Human Anatomy (what goes where)
- To provide a basic understanding of Human Physiology (what things do)

Time (mins)	Activity	Resources
60	<p>Interactive teaching session where students are given one or more pieces of the model for human anatomy and asked to explain to the class.</p> <ol style="list-style-type: none"><li>1. What they know about that part of the body in terms of its position, function etc.</li><li>2. What they know about the effects of exposure to chemical or physical agents on that part of the body</li></ol> <p>Students will all have prior knowledge and the chance for them to present will allow them to share this with the other students and tutor filling in the gaps.</p>	<p>Physiology mannequin or poster drawn on flipchart.</p> <p>See links below:</p>
45 mins varying depending on length of first part	<p>Lecture by tutor summarising the learning points from the interactive session.</p>	<p>PowerPoint</p>

NB Anatomical models are now freely available. Large versions may be too expensive but small ones cheap and easily obtainable.

Examples include: <http://www.esmodels.co.uk/catalog/torso-12-parts-with-head-p-3060.html?osCsid=cc810b4e747d16f126dbb78de2af64eb>

or

<http://www.proidee.co.uk/shop?P=531277&H=froogle>

or

[http://www.justchildsplay.co.uk/productdetails.aspx?product\\_id=1776](http://www.justchildsplay.co.uk/productdetails.aspx?product_id=1776)

Academic institutions may also be able to base the teaching around access to:  
<http://www.primalpictures.com/Educators.aspx>

### **Lesson plan: Section 3 – Fundamentals of Toxicology**

Aims: To provide students with an understanding of key concepts in toxicology.

Objectives:

- Introduce basic concepts; hazard, dose, routes of entry/absorption, metabolism, toxicity testing.
- Illustrate the use of Material Safety Data Sheets as sources of hazard information.

Time (mins)	Activity	Resources
60	Lecture by tutor explaining the concepts described in the course manual.	PowerPoint
45	<p>Select a number of material safety data sheets which are relevant to the student's experience. Provide copies to the students and ask them to study them, and then hold a discussion asking various questions which require the student to understand the information on the sheet. e.g. ask them to compare two materials which do similar things but have different properties (high and low solvent content cleaners or paints).</p> <p>Alternatively give each student a different MSDS and play a short game of "Top Trumps" where students score points for having Highest volatility substance, worst properties etc.</p>	Tutor provided MSDSs.

## **Lesson plan: Section 4 – Examples of Hazardous Substances/Processes**

**Aims:** To provide some basic knowledge of industrial processes/activities and their associated hazards that will allow students to engage with other parts of this course (e.g. risk assessment) as well as go on to further study.

**Objectives:**

- Introduce some common industrial processes/hazards.
- Illustrate the variety of industrial processes present.
- Illustrate the essential requirement of understanding an industrial process before any Anticipation, Recognition, Evaluation or Control can take place.

Time (mins)	Activity	Resources
60	<p>Lecture by tutor explaining the processes described in the course manual and the hazards associated with them.</p> <p>Lecturer may add other processes as deemed appropriate.</p> <p>Alternatively tutor should hand out cards to students with the names of: Silica, MMMF, Isocyanates, Wood Dust, etc... So that each student has at least one card. Tutor should then ask each student what they know about each substance/process before it comes up in the presentation. This will help draw out what the student already knows as well as keep all students engaged.</p>	PowerPoint
45	<p>Where relevant ask students to give a short presentation on their workplace showing:</p> <ol style="list-style-type: none"><li>1. What activities are carried out</li><li>2. What hazards are present in the form</li></ol>	Flip chart

	<p>of chemical or physical agents?</p> <p>This activity is not compulsory and will only work with certain groups of students.</p>	
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## **Lesson plan: Section 5 – Assessment of Health Risks**

Aims: To give students a basic understanding of principles and processes involved in the Assessment of Health Risks

Objectives:

- Define Hazard and Risk
- Describe the mechanisms of risk assessment
- Introduce expert systems and control banding

Time (mins)	Activity	Resources
30	Lecture by tutor with appropriate interaction with class to determine how much the students already know about the subject.	PowerPoint
45	Risk Assessment case studies – Students shown photos of processes and asked to: Identify hazards. Assess the Health risks	PowerPoint