

Module Details	
Module Title	Practical Chemistry For Apprentices 3
Module Code	CFS6024-C
Academic Year	2020/1
Credits	30
School	School of Chemistry and Biosciences
Subject Area	Chemistry
FHEQ Level	FHEQ Level 6
Pre-requisites	N/A
Co-requisites	N/A

Contact Hours	
Type	Hours
Laboratories	60
Tutorials	5
Work based learning	225
Directed Study	10

Availability	
Occurrence	Location / Period
DLA	University of Bradford / Academic Year

## Module Aims

You will further develop your skills for the synthesis of inorganic compounds, manipulation of the physical properties of coordination compounds.

You will gain experience of the physical basis of separation science and its applications in laboratory chromatographic techniques.

You will extend your laboratory skills to considering the methods for manipulation of the solid state including polymer synthesis and provide practical illustration of analytical techniques to interrogate the solid state and identify phase change.

You will develop your professional and transferable skills, developing your portfolio of knowledge from years 1 and 2.

You will further engage with the commercial environment of your company and learn about the regulatory environment that you work in.

## Outline Syllabus

**SPECTROSCOPIC AND MAGNETIC PROPERTIES OF COORDINATION COMPOUNDS:** Introduction to synthesis of coordination compounds. Isomerism in metal ion coordination compounds, spectroscopic analysis; electrochemistry of metal complexes. Optical isomerism.

Experiments to illustrate the material you have learned in Physical Chemistry 2 (at distance).

**PROFESSIONAL SKILLS:** The regulatory environment, the expectation of customers.

**PERSONAL SKILLS:** Interview technique, presenting scientific results in an oral setting.

## Learning Outcomes

Outcome Number	Description
L01	Describe the physical effects of manipulating metals in coordination compounds.
L02	Describe how the underpinning principles of separation techniques are applied in laboratory chromatography.
L03	Interpret spectroscopic and analytical data for solid state materials.
L04	Communicate scientific ideas effectively in a viva setting.
L05	Critically examine the internal and external regulatory environment and the needs of internal and external customers pertinent to the area of specialisation.
L06	Use a range of sources to analyse and evaluate data and problem solve.
L07	Identify and use the scientific approaches appropriate to the specialist discipline required to solve problems, support new investigations and follow-up experiments in the laboratory.

## Learning, Teaching and Assessment Strategy

Material will be taught both during a residential block release visit and via distance learning throughout the academic year.

Block release laboratory-based work will include staff-led demonstration of practical and manipulative skills at the bench and supervision of students' experimental work.

Online material will be provided for each experiment to familiarise students with the concepts and procedures. Students will be asked to reflect on the results and their significance. Data analysis will be taught and practised through problem-based learning and workshops.

The student supervisory team will guide completion of the e-portfolio and identify additional learning requirements for the student to complete this module.

Assessment 1 is an essay to cover the regulatory framework pertinent to the apprentice's employment and the customer requirements. Support for this will primarily come from the student's industrial supervisor. A draft will be assessed for formative feedback. LO5.

Block release laboratory work will be assessed via an oral/viva examination, which will be given to test students' understanding and give them interview technique practice. This will test LO1, 2, 3, 4.

The continued e-portfolio of practical skills will constitute assessment 3 and will be used to assess LO 6 and 7. Formative feedback on e-portfolios will be provided throughout the year at regular intervals.

### Mode of Assessment

Type	Method	Description	Length	Weighting
Summative	Examination - oral/viva voce	Oral examination of laboratory work conducted in the Block Release Visit	20 mins	25%
Summative	Coursework	Essay to cover the regulatory framework pertinent to the apprentice's employment and the customer requirements (1500 )	N/A	25%
Summative	Coursework	e-portfolio of Chemistry skills and knowledge developed through year 0-3000 words)	N/A	50%
Formative	Coursework	Identify the regulatory framework pertinent to the apprentice's employment and the customer requirements	300-400 words	N/A

### Reading List

To access the reading list for this module, please visit <https://bradford.rl.talis.com/index.html>

**Please note:**

*This module descriptor has been published in advance of the academic year to which it applies. Every effort has been made to ensure that the information is accurate at the time of publication, but minor changes may occur given the interval between publishing and commencement of teaching. Upon commencement of the module, students will receive a handbook with further detail about the module and any changes will be discussed and/or communicated at this point.*