

Liverpool John Moores University

Title: HI-TECH COLOURANTS
Status: Definitive
Code: **7002APCHEM** (121143)
Version Start Date: 01-08-2021

Owning School/Faculty: Pharmacy & Biomolecular Sciences
Teaching School/Faculty: Pharmacy & Biomolecular Sciences

Team	Leader
Mark Wainwright	Y
Christopher Coxon	
Francesca Giuntini	
Andrew Leach	

Academic Level: FHEQ7 **Credit Value:** 20 **Total Delivered Hours:** 40
Total Learning Hours: 200 **Private Study:** 160

Delivery Options

Course typically offered: Semester 1

Component	Contact Hours
Lecture	23
Seminar	2
Tutorial	2
Workshop	10

Grading Basis: 50 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	Exam	Exam	70	3
Report	Brochure	Report brochure	30	

Aims

Based on prior 'modern materials' modules, Hi-Tech Colourants provides candidates with comprehensive coverage of the applications of chemistry in modern photonics,

including light emissive materials, photo- and electrochromics, dye-sensitised solar cell technology, photodynamics, sensors, biosensors and imaging agents. Material will reflect the place of non-textile colourants in modern commerce.

Learning Outcomes

After completing the module the student should be able to:

- 1 Present and differentiate the photochemistry underpinning 21st Century non-textile applications of colourants.
- 2 Formulate chemical pathways to target, high-technology colourant molecules.
- 3 Critically assess and differentiate chemical structures for applied photonic use.

Learning Outcomes of Assessments

The assessment item list is assessed via the learning outcomes listed:

Examination	1	2	3
Report brochure	1	2	3

Outline Syllabus

Introduction to advanced photonics; Non-linear optics; OLEDs / PLEDs; photochromics / electrochromics; dye-sensitised solar cells; photodynamics - medical/environmental; organic sensors; imaging / contrast agents.

Learning Activities

Lectures, seminars, tutorials and workshops

Notes

This module is designed to cover the exciting area of modern non-textile colourant application. These include light emissive materials, dye-sensitised solar cell technology, medical and biological applications of high-technology dyes. The module is supported by both standard lectures workshops, seminars and tutorials, and is assessed by individual poster presentation, together with a formal examination of 3 hours' duration.