



ATTACHMENT 2 (e)

Course Specifications

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

Dyes and fibers

4024771-3
Course Specifications
(CS)





Course Specifications

Institution: Umm Al-qura University	Date of Report: 2017
College/Department : Faculty of Applied Science/ department of chemistry	

A. Course Identification and General Information

1. Course title and code: Dyes and fibers/ 4024771-3			
2. Credit hours: 3 hrs (2 theoretical + 1 practical)			
3. Program(s) in which the course is offered. Industrial Chemistry			
4. Name of faculty member responsible for the course: Professor Dr. Thoraya A. Farghaly			
5. Level/year at which this course is offered: 7rd level/4st year			
6. Pre-requisites for this course (if any): Physical organic chemistry and stereochemistry			
7. Co-requisites for this course (if any)---			
8. Location if not on main campus: El-Abdyah			
9. Mode of Instruction (mark all that apply)			
a. Traditional classroom	<input checked="" type="checkbox"/>	What percentage? 100%	
b. Blended (traditional and online)		What percentage?	
c. e-learning	<input type="checkbox"/>	What percentage?	<input type="checkbox"/>
d. Correspondence	<input type="checkbox"/>	What percentage?	<input type="checkbox"/>
f. Other	<input type="checkbox"/>	What percentage?	<input type="checkbox"/>
Comments:			

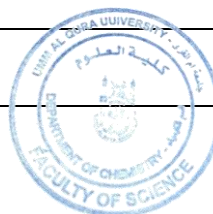


B Objectives

1. What is the main purpose for this course? By the end of this course student will be familiar with nomenclature, chemical properties and synthesis of dyes and know the types of fibers and how they can dye the textile fibers.
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field) The students will be mentioned to prepare an essay or a report from literature using the library, data base services, and/or websites to follow up and update the new topics of the subject of the course

C. Course Description (Note: General description in the form to be used for the Bulletin or handbook should be attached)

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact Hours
• Colors theory, the relation between the color and the structure of the dyes and the visual and ultraviolet Spectra	1	2
• Classification of dyes: Classification based on chemical structure, Classification based on application method (natural dyes, synthetic dyes), Dyes Containing Anionic Functional Groups,	1	2
• Dyes Containing Cationic Groups (Basic Dyes), Dyes Requiring Chemical Reaction Before Application	2	4
• Structure of synthetic dyes (nitro, nitrozo, azo, triarylmethane, xanthan, acridine, quionoline and others) and their synthesis.	2	4
• Application Methods and Factors Affecting Dyeing	2	4
• Introduction on fibers and their types : natural fibers (animal fibers (wool, silk, leathers, hair), plant fibers (cotton, rubber)	2	4
• synthetic fibers (Rayon, Cellulose acetate, Nylon, polyester, acrylic and polyolefins	2	4
• Uses of fibers	1	2
• Kinds of forces that bind the dye fiber	1	2





laboratory Part:

- 1- Synthesis of sudan dye {Phenyl azo β -naphthol}
- 2- Synthesis of methyl Orange
- 3- Synthesis of orange (II)
- 4- Synthesis of mono azo disperse dye.
- 5- Synthesis of heterocyclic disperse dye.
- 6- Desizing, Scouring and Bleaching of raw cotton fabric
- 7- Dyeing of cotton fiber and silk



2. Course components (total contact hours and credits per semester):						
	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	28	-	42			70
Credit	2	-	1			3

3. Additional private study/learning hours expected for students per week. 2hrs

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	Knowledge		
1.1	Recognize the nomenclature of different dyes	<ul style="list-style-type: none"> • Lectures • Scientific discussion • Library visits • Web-based study 	<ul style="list-style-type: none"> • Exams • web-based student performance systems • portfolios • long and short essays • posters lab manuals
1.2	Know the classifications all types of dyes and fibers		
1.3	Remember the physical properties of dyes		
1.4	Describe the different methods of preparations of dyes and fibers		
1.5	Familiar with Kinds of forces that bind the dye fiber		
1.6	Define the preparation methods of some organic pigments such as azo dyes		
1.7	Recognize the industrial use of most famous dyes and fibers		
1.8	Know the different types of fibers.		
2.0	Cognitive Skills		
2.1	Making the student acquire the skill of naming azo dyes	<ul style="list-style-type: none"> • Lectures • Scientific 	<ul style="list-style-type: none"> • Exams • web-based
2.2	Apply preparation methods of some organic pigments such as azo		



	dyes	discussion • Library visits • Web-based study	student performance systems • portfolios • posters • demonstrations
2.3	The distinction between different types of organic pigments		
2.4	Summarizes the most important Kinds of forces that bind the dye fiber		
2.5	Design of different ways to synthesize several types of dyes		
2.6	Doing a process dye on cotton fiber and silk		
3.0	Interpersonal Skills & Responsibility		
	<ul style="list-style-type: none"> The division of students collectively for teams to make some common reports Self-reliance and take individual responsibility and the ability to work within the group Ability to work independently to handle Chemicals and perform laboratory illustrations safely. Ability to communicate results of work to classmates. Ability to work in a team to perform a specific task. 	<ul style="list-style-type: none"> Class discussions Research activities 	<ul style="list-style-type: none"> Performance on in-practical exams. Work on research activity. Overall student performance in Lab. discussions Cross questions after finishing laboratory work
4.0	Communication, Information Technology, Numerical		
	<ul style="list-style-type: none"> Evaluate the different methods of preparation of different types of dyes and pigments Ability to computers and internet to search and restore information. Use information and communication technology. The ability to use e-mail to communicate with the instructor and other students. Scientific writing. 	<ul style="list-style-type: none"> Lectures Scientific discussion Library visits Web-based study 	<ul style="list-style-type: none"> web-based student performance systems individual and group presentations
5.0	Psychomotor		
5.1	Laboratory practice . including	Practical session should include both demonstration and experiments .	1.Repetition of the experiments , to reproduce the results 2.Written report of chart and
5.2	1.Locate Materials Safety Data Sheets, chemicals carcinogens list, and hazardous chemicals list. 2. Handle chemicals safely with a proper PPE 3..Dispose the hazardous solution in right way		



			procedures. 3.The students should be able to correlate their results with experimental conditions
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5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Homework or activities.	--	10 %
2	Midterm Exam.	8	20 %
3	Practical Exam.	14	30 %
4	Final Exam. (2hours exam)	16	40 %
5	Total		100 %

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)

- **We have faculty members to provide counseling and advice.**
- **Office hours: During the working hours weekly.**
- **Academic Advising for students.**

E. Learning Resources

1. List Required Textbooks

- Industrial Dyes: Chemistry, Properties, Applications by Klaus Hunger- WILEY-VCH Verlag GmbH & Co. 2. 2004
- Physico-chemical principles of color chemistry, A. T. Peters, H. S. Freeman, 1996
- Colorants for Non – Textile Applications by Freeman - Elseiver, 2000.

2. List Essential References Materials (Journals, Reports, etc.)

- Lecture Hand outs available on the coordinator website

3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)

- Modern Colorants: Synthesis and Structure by A T Peters and H S Freeman - Springer, 1995



<ul style="list-style-type: none">• Color Chemistry: Syntheses, Properties, and Applications of Organic Dyes and pigments, Heinrich Zollinger, 2003.
4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.) <ul style="list-style-type: none">• http://www.chemweb.com• http://www.sciencedirect.com• http://www.rsc.org
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) <ul style="list-style-type: none">• Classrooms capacity (30) students.• Providing hall of teaching aids including computers and projector.
2. Computing resources (AV, data show, Smart Board, software, etc.) <ul style="list-style-type: none">▪ Room equipped with computer and projector and TV.
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list) <ul style="list-style-type: none">• No other requirements.

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching Complete the questionnaire evaluation of the course in particular.
2 Other Strategies for Evaluation of Teaching by the Program/Department Instructor <ul style="list-style-type: none">• Observations and the assistance of colleagues.• Independent evaluation for extent to achieve students the standards.• Independent advice of the duties and tasks.
3 Processes for Improvement of Teaching <ul style="list-style-type: none">• Workshops for teaching methods.• Continuous training of member staff.• Review of strategies proposed.• Providing new tools for learning.• The application of e-learning.



- **Eexchange of experiences internal and external.**

4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)

- **Check marking of a sample of exam papers, or student work.**
- **Exchange corrected sample of assignments or exam basis with another staff member for the same course in other faculty.**

5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

- **Periodic Review of the contents of the syllabus and modify the negatives.**
- **Consult other staff of the course.**
- **Hosting a visiting staff to evaluate of the course.**
- **Workshops for teachers of the course.**

Faculty or Teaching Staff: Prof. Thoraya A. Farghaly

Signature:  Date Report Completed: 12/1/2019

Received by: Dr. Ismail Althagafi Department Head

Signature:  Date: 20/1/2019

