

804043 - GCSI-M - Colour Management and Printing Systems

Coordinating unit: 804 - CITM - Image Processing and Multimedia Technology Centre
Teaching unit: 804 - CITM - Image Processing and Multimedia Technology Centre
Academic year: 2019
Degree: BACHELOR'S DEGREE IN MULTIMEDIA STUDIES (Syllabus 2009). (Teaching unit Compulsory)
ECTS credits: 6 Teaching languages: Catalan, Spanish

Teaching staff

Coordinator: Martínez Navarro, Beatriz

Degree competences to which the subject contributes

Specific:

4. (ENG) Aplicar los conceptos fundamentales relacionados con los procedimientos de preservación del color en el flujo de trabajo digital.
5. (ENG) Generar e incrustar perfiles de color según procedimientos estandarizados para cada flujo de trabajo.
6. (ENG) Utilizar los procedimientos para transferir las imágenes digitales a soporte físico mediante impresión.
7. (ENG) Establecer protocolos de impresión adecuados a imágenes y/o instrumentos dados.

Transversal:

1. SELF-DIRECTED LEARNING. Detecting gaps in one's knowledge and overcoming them through critical self-appraisal. Choosing the best path for broadening one's knowledge.
2. EFFICIENT ORAL AND WRITTEN COMMUNICATION. Communicating verbally and in writing about learning outcomes, thought-building and decision-making. Taking part in debates about issues related to the own field of specialization.
3. EFFECTIVE USE OF INFORMATION RESOURCES. Managing the acquisition, structure, analysis and display of information from the own field of specialization. Taking a critical stance with regard to the results obtained.

Teaching methodology

Classes are divided, in general, into 3 types.

1. Realization, explanation and discussion of the exercises during the previous session and resolution of doubts about them.
2. Exhibition activity directed by the teacher to introduce new knowledge (topics).
3. Explanation of next year and the supplementary materials.

These activities are modulated according to the complexity of the exercises and the corresponding content.

Learning objectives of the subject

1. Solve, through specific procedures, problems of color management and image printing.
2. Solve image processing problems based on image applications.
3. Carry out the tasks assigned from the basic guidelines given by teachers, deciding the time to be used for each task, including personal contributions and expanding the sources of information indicated.
4. Use strategies to prepare and conduct oral presentations and write texts and documents with consistent content, adequate structure and style and a good spelling and grammar level.
5. After identifying the different parts of an academic document and organizing the bibliographic references, designing

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and executing a good advanced search strategy with specialized information resources, selecting the relevant information taking into account criteria of relevance and quality.

Study load

Total learning time: 150h	Hours large group:	0h	0.00%
	Hours medium group:	60h	40.00%
	Hours small group:	0h	0.00%
	Guided activities:	0h	0.00%
	Self study:	90h	60.00%

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Content

<p>Unit 1. Color perception</p>	<p>Learning time: 10h Theory classes: 4h Self study : 6h</p>
<p>Description:</p> <ol style="list-style-type: none"> 1. Color definition. 2. The visible light spectrum. 3. Lighting and color. 4. Light and object. 5. The human vision system. 6. Color appearance. 	
<p>Unit 2. Colometry: Color characteristics</p>	<p>Learning time: 10h Theory classes: 4h Self study : 6h</p>
<p>Description:</p> <ol style="list-style-type: none"> 1. Spectral and non-spectral colors. 2. Spectral intensity distribution curves. 3. Metamerism. 	
<p>Unit 3. Colometry: Color description systems</p>	<p>Learning time: 10h Theory classes: 4h Self study : 6h</p>
<p>Description:</p> <ol style="list-style-type: none"> 1. Synthesis of tristimulus values: RGB, CMY. 2. Perceptual trivariance: hue, luminosity, saturation. 3. The color system of Munsell. 4. CIE: standard observer and tristimulus values. 5. XyY-CIE system. 6. CIE-L * a * b * system. 7. Calculation of color differences. 8. Color measurement systems. 	

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<p>Unit 4. Color reproduction in image reproduction devices</p>	<p>Learning time: 10h Theory classes: 4h Self study : 6h</p>
<p>Description:</p> <ol style="list-style-type: none"> 1. Cameras and scanners: RGB sensors. 2. Monitors: types and characteristics. 3. Printing systems. 4. Color spaces of the devices. 	
<p>Unit 5. ICC Profiles</p>	<p>Learning time: 10h Theory classes: 4h Self study : 6h</p>
<p>Description:</p> <ol style="list-style-type: none"> 1. Elements of Color Management: PCS, ICC, ICM. 2. Types of ICC profiles. 3. Creation of ICC profiles. 4. Calibration and profiling of monitors. 5. Application of ICC profiles. 	
<p>Unit 6. Color spaces</p>	<p>Learning time: 10h Theory classes: 4h Self study : 6h</p>
<p>Description:</p> <ol style="list-style-type: none"> 1. What are the color spaces. 2. Most used color spaces. 3. Application of color spaces. 	
<p>Unit 7. Color management with photoshop</p>	<p>Learning time: 20h Theory classes: 8h Self study : 12h</p>
<p>Description:</p> <ol style="list-style-type: none"> 1. Color adjustments. 2. Assign profiles. 3. Convert into profiles. 4. Test settings. 	

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<p>Unit 8. Color Management in RAW images</p>	<p>Learning time: 10h Theory classes: 4h Self study : 6h</p>
<p>Description:</p> <ol style="list-style-type: none"> 1. Characteristics of the RAW format. 2. Adobe Camera RAW application: image editing. 3. Calibrate the color in Adobe RAW Camera. 4. Other applications to calibrate the color in RAW. 	
<p>Unit 9. Color management in Video and Cinema</p>	<p>Learning time: 5h Theory classes: 2h Self study : 3h</p>
<p>Description:</p> <ol style="list-style-type: none"> 1. Difference between video and cinema 2. Specificities of color management in the audiovisual field 3. Workflows with Color Management in audiovisual productions 	
<p>Unit 10. Preparation of images for output</p>	<p>Learning time: 10h Theory classes: 4h Self study : 6h</p>
<p>Description:</p> <ol style="list-style-type: none"> 1. Characteristics of the starting file. 2. Image for web. 3. Image for RGB printing. 4. Image for CMYK printing. 5. Communication with the printer. 6. Creation of pdf files. 7. Color Management with InDesign. 	

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<p>Unit 11. Printing systems: concepts about the printing process</p>	<p>Learning time: 10h Theory classes: 4h Self study : 6h</p>
<p>Description:</p> <ol style="list-style-type: none"> 1. Continuous tone and halftone. 2. Resolution and linearity. 3. Print pattern. 4. Parameters to assess print quality. 5. Inks 6. Types of support: paper. 	
<p>Unit 12. Printing systems</p>	<p>Learning time: 10h Theory classes: 4h Self study : 6h</p>
<p>Description:</p> <ol style="list-style-type: none"> 1. Photochemical printing. 2. Laser printing. 3. Inkjet. 4. Sublimation printing. 5. Graphic arts. 	
<p>Unit 13. Printing systems in Graphic Arts</p>	<p>Learning time: 10h Theory classes: 4h Self study : 6h</p>
<p>Description:</p> <ol style="list-style-type: none"> 1. Offset printing. 2. Digital printing. 3. Workflow in a printing press. 4. Quality Control in Graphic Arts. 	

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Planning of activities

(ENG) CASOS PRÀCTICS: EXPERIÈNCIES SOBRE PERCEPCIÓ DEL COLOR	
(ENG) PRÀCTICA P01: CARACTERÍSTIQUES DEL COLOR, PRESA DE MIDES I CÀLCUL DE DIFERÈNCIES	Hours: 5h Practical classes: 2h Self study: 3h
(ENG) PRÀCTICA P02: GESTIÓ DE COLOR EN PHOTOSHOP	Hours: 5h Practical classes: 2h Self study: 3h
name english	Hours: 5h Practical classes: 2h Self study: 3h
name english	Hours: 6h Practical classes: 2h Self study: 4h
(ENG) PRÀCTICA P05: PREPARACIÓ D'IMATGES PER A SORTIDA	Hours: 5h Practical classes: 2h Self study: 3h
(ENG) PRÀCTICA P06: PROCESSOS D'IMPRESSIÓ AMB I SENSE GESTIÓ DE COLOR	Hours: 12h Practical classes: 4h Self study: 8h

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Qualification system

Exercises (35%). Practical exercises, problems and software testing problems.

Exams. There will be two midterm exams (15% each) and a final exam (25%)

Participation and attitude (10%)

The assessment of student participation / a in the training activities of matter, and actitudd'aprenentatge, will be evaluated by monitoring their interventions in class, questions, autonomous resolution of the issues raised in practical exercises, etc. This assessment corresponds to 10% of the final grade.

Reassessment. Students who have not passed the subject by continuous assessment have the option to be submitted to the reassessment. To be eligible you need to have presented the process of continuous assessment.

Regulations for carrying out activities

Practice exercises

The practice exercises are carried out following the instructions given in the corresponding Practice Sheet document and the indications that have been given in this part of the corresponding class. Internships will not be accepted after the deadline established in the practice sheet and in the delivery system through the Virtual Campus, unless it is for duly justified reasons.

Exams and final tests

The exams will be carried out in the classroom with computers by electronic document that the student must complete.

The questions and problems proposed in the exams refer to both the theoretical content of the subject and the exercises solved in the different practices. Apart from each question or problem, the contribution in points appears in the total mark of the exam.

The revisions and / or claims regarding the exams will be made exclusively on the dates and times established in the Academic Calendar.

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Bibliography

Basic:

Fittkau, Reinhard [et al.]. Digipix 3: compendium for digital photography [on line]. ADF/ECI, 2006 [Consultation: 01/04/2014]. Available on: <http://www.eci.org/_media/downloads/digital_photography/digipix3_v300_en.pdf>.

CMYK, núm. 1-5. Valencia: AIDO, Instituto Tecnológico de Óptica, Color e Imagen, 2001-2002.

Berns, Roy S. Billmeyer and Saltzman's principles of color technology. 3rd ed. New York: John Wiley & Sons, 2000. ISBN 047119459X.

Falk, D.S.; Brill, D.R.; Stork, D.G. Seeing the light: optics in nature, photography, color vision and holography. Chichester: John Wiley & Sons, 1986. ISBN 0471603856.

International color consortium: making color seamless between devices and documents [on line]. [Consultation: 07/04/2014]. Available on: <<http://www.color.org/>>.

Koren, Norman. Color management 2002-2004 [on line]. [Consultation: 07/04/2014]. Available on: <http://www.normankoren.com/color_management.html>.

Mc Hugh, Sean T. Cambridge in colour: digital photography tutorials [on line]. Available on: <<http://www.cambridgeincolour.com/tutorials.htm>>.

Mesa, Paulo César. Sensación y percepción [on line]. [Consultation: 07/04/2014]. Available on: <<http://www.monografias.com/trabajos7/sepe/sepe.shtml>>.

Sánchez Muñoz, Gustavo. Administración del color [on line]. [Consultation: 07/04/2014]. Available on: <http://www.gusgsm.com/categoria_administracion_del_color>.

Complementary:

Ortiz Zamora, F.G. "Fundamentos del color". Ortiz Zamora, F.G. Procesamiento morfológico de imágenes en color: aplicación a la reconstrucción geodésica [on line]. Alicante: Universidad de Alicante. Departamento de Física, Ingeniería de Sistemas y Teoría de la Señal, 2002. p. 8-40 [Consultation: 01/04/2014]. Available on: <<http://rua.ua.es/dspace/handle/10045/10053>>.

Bunting, Fred. The colorshop color primer: an introduction to the history of color, color theory, and color measurement [on line]. Light Source Computer Images, Inc., 1998 [Consultation: 07/04/2014]. Available on: <http://www.xrite.com/documents/apps/public/misc/Color_Primer_by_Fred_Bunting.pdf>.

Others resources: