

ERASMUS MUNDUS JOINT MASTER DEGREE

CO·SI

COLOUR IN SCIENCE AND INDUSTRY



University  
of Eastern  
Finland



Gjøvik  
University  
College



University  
of Granada



University  
Jean Monnet



Changing lives,  
opening minds

The European Union  
programme for education,  
training, youth and sport

2014-2020



# Erasmus+ COSI: Building a long-lasting European center of academic excellence

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<http://master-colorscience.eu/>

# EUROPEAN MASTER DEGREES IN COLOUR SCIENCE



UNIVERSIDAD  
DE GRANADA



With the support of the  
Erasmus+ programme  
of the European Union

Brussels, 29/07/2014

EACEA/A3/MH/ (2014)

**Subject:** Erasmus+ Programme - Joint Master Degrees (JMD)  
Call for proposals 2014 (EAC/S11/13)

**Title:** COLOUR in Science and Industry

**Reference:** 553342-EPP-1-2014-1-FR-EPPKA1-JMD-MOB  
(Please quote this number in all correspondence)

The Consortium is a joint venture, involving top European and Asian universities at the forefront of fundamental and applied research and knowledge transfer in **colour science** and industrial leaders in their fields, in sectors where expertise in colour-related applications is growing fast.

# COSI

EUROPEAN  
MASTER DEGREE

< COLOUR IN  
SCIENCE AND  
INDUSTRY >

industrial  
partners

#15

Be where the  
future of  
colour  
science will  
happen

Asian  
universities

#5

towards Asian  
markets &  
knowledge  
economies

global academic excellence meeting  
worldwide colour markets



innovative  
university  
business  
cooperation  
at the heart  
of our  
programme  
development.

building an  
European  
center of  
academic  
excellence

cross-  
fertilization of  
research and  
knowledge  
transfer

#4

European  
universities



SUPPORTING INDUSTRIAL PARTNERS

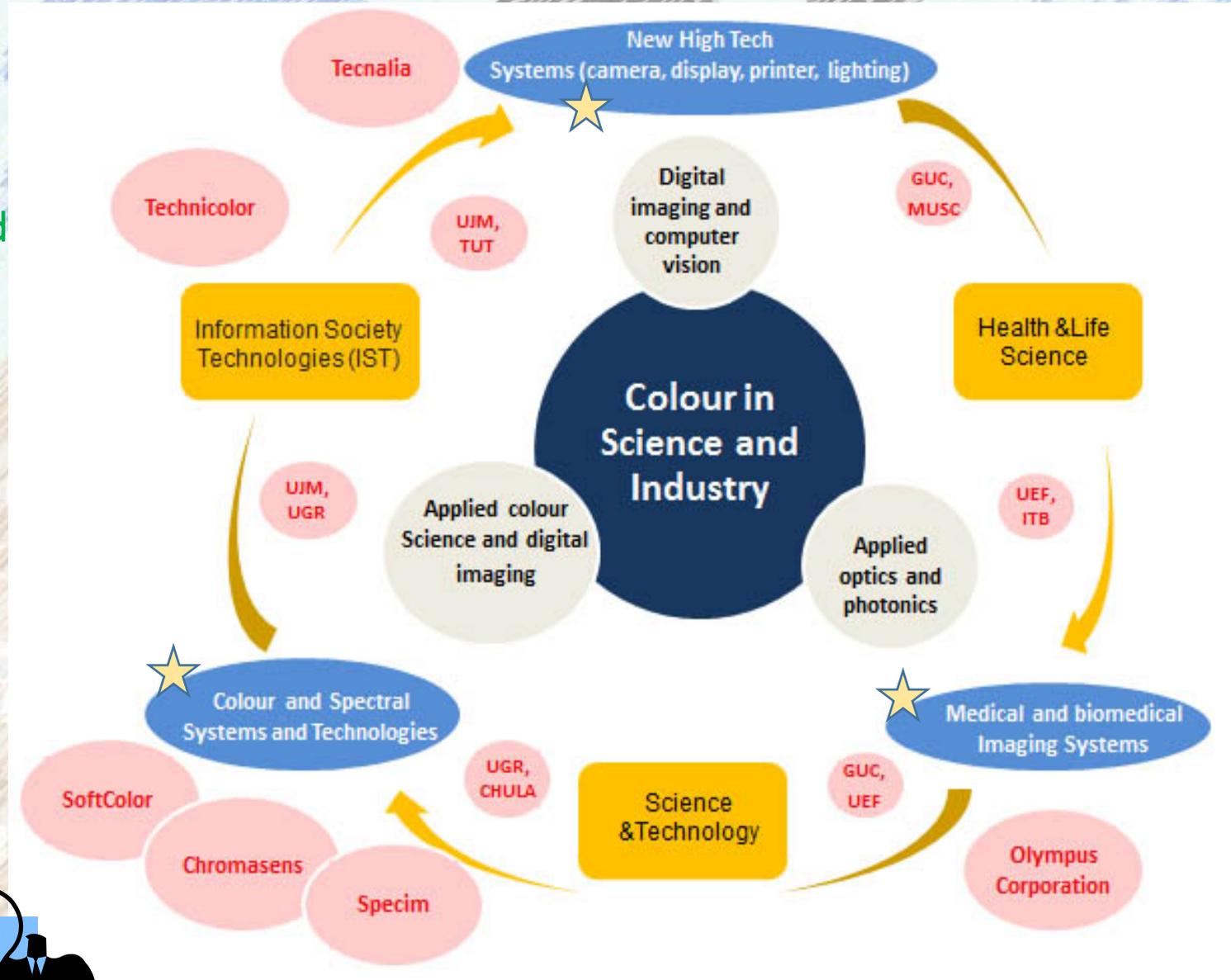


ASSOCIATED INDUSTRIAL PARTNERS



+ The consortium is composed of a set of world class research laboratories unique in Europe and supported by a huge network of industrial partners (from SMEs to large companies).

- The competencies provided to the graduates appear sufficiently focussed on specific areas of the labour market.



## MOBILITY DURING THE TWO-YEAR PROGRAMME:

Semester 1  
(Sept-February)



Semester 2  
(February-July)



Semester 3  
(August-January)



OR



Semester 4  
Master Thesis TFM  
(January-Sept)

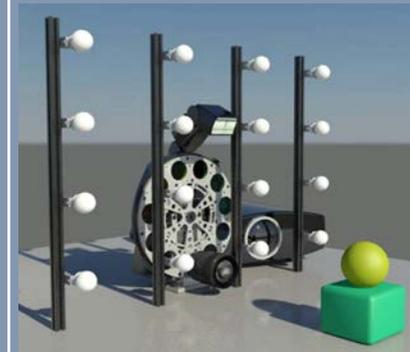
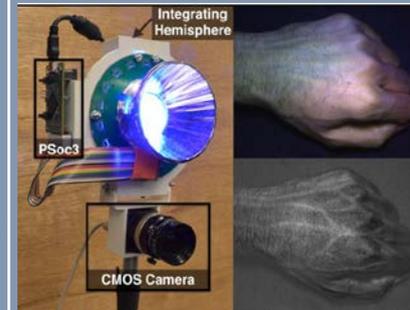


+ The programme is organised around three taught semesters, each offered by a different institution, and a Work Placement in the 4th semester.



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Semester 1 (Sep -Jan)	Semester 2 (Feb - June)	Semester 3 (Aug - Dec)	Semester 4 (Feb - July)
<b>Fundamentals (UJM)</b> 30 ECTS  Mandatory courses: 30 ECTS Digital Image Fundamentals <ul style="list-style-type: none"> <li>Applied Colour Science</li> <li>Data Analysis and Statistics</li> <li>Introduction to scientific programming</li> <li>Applied Photonics and Optics</li> <li>Introduction to specialization fields and industrial study cases</li> </ul> Optional courses: (Extra ECTS) <ul style="list-style-type: none"> <li>Introduction to Matlab</li> <li>Scientific courses taught in other international master programmes coordinated by UJM</li> <li>French language and culture</li> </ul>	<b>Pre-specialization (Granada)</b> 30 ECTS  Mandatory courses: 20 ECTS <ul style="list-style-type: none"> <li>Applied Advanced Colorimetry</li> <li>Human Perception and Cognition</li> <li>Digital Entrepreneurship and Innovation**</li> <li>Fundamentals of Spectral Science</li> </ul> Optional courses: 10 ECTS <u>Recommended for Track 1:</u> <ul style="list-style-type: none"> <li>Radiometry, Sources &amp; Detectors</li> <li>Image Acquisition and Reproduction</li> <li>Fourier Optics</li> </ul> <u>Recommended for Track 2:</u> <ul style="list-style-type: none"> <li>Advanced Colour Image Processing</li> <li>Computer vision*</li> <li>Project in Computer vision*</li> </ul> Optional courses: (Extra ECTS) <ul style="list-style-type: none"> <li>Spanish language and culture</li> </ul>	<b>Track 1 (Joensuu)</b> <b>Specialization in Spectral Technologies</b> 30 ECTS  Mandatory courses: 20 ECTS <ul style="list-style-type: none"> <li>Color Science Laboratory</li> <li>Industrial and Biomedical Optics</li> <li>Spectral Imaging Devices</li> <li>Industrial Projects</li> </ul> Optional courses: 10 ECTS <ul style="list-style-type: none"> <li>Computational Colour</li> <li>Display Technologies</li> <li>Machine Vision</li> <li>Pattern Recognition*</li> </ul> <u>Optional courses: (Extra ECTS)</u> <ul style="list-style-type: none"> <li>Scientific courses taught in other international master programmes coordinated by UEF</li> <li>Finish language and culture</li> </ul> <b>Track 2 (Gjøvik)</b> <b>Specialization in Applied Colour Imaging</b> 30 ECTS  Mandatory courses: 20 ECTS <ul style="list-style-type: none"> <li>Colour in medical imaging</li> <li>Advanced colour management</li> <li>Colour image quality and processing in an imaging workflow</li> <li>Industrial projects</li> </ul> Optional courses: 10 ECTS <ul style="list-style-type: none"> <li>Advanced course in video processing</li> <li>Selected topics in colour imaging</li> <li>Content-based indexing and retrieval</li> <li>Machine learning and Pattern recognition*</li> </ul> <u>Optional courses: (Extra ECTS)</u>	<b>Master thesis:</b> 30 ECTS  In a company or a research center on an applied topic linked to a specific socio-economical sector  <u>Optional courses: (Extra ECTS)</u> <ul style="list-style-type: none"> <li>Scientific courses taught in other international master programmes coordinated by TUT, MUSC, CHULA, ITB</li> <li>Thai, Indonesian, Japanese, Malay, language and culture</li> </ul>



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# Diploma grade and grading policy

The COSI programme is built from 4 national degrees awarded by 4 European Universities:

- UGR will deliver the master diploma “Máster Universitario en Ciencia y Tecnología del Color “
- UJM will deliver the master diploma “Master Optics, Image, Vision, Multimedia”
- UEF will deliver the master diploma “Master of Science in Computer Science COSI”
- GUC will deliver the master diploma “Master in Applied Computer Science “

- + The proposal explains very well about the recognition status of the JMD
- + A student agreement with duties and rights of both parties will be signed





# Electronic submission of candidates

+ Selection and integration of students

## How applications are assessed?

1/ Each eligible applications are first pre-evaluated by two members of the Academic and Management Board according to the to the scoring table and weighted criteria as indicated below:

Criteria used to assess online application	weight
<i>Academic excellence</i>	50%
Recognition of home institution/ recognition of the first degree	10%
Rank/grade/distinction	20%
Adequacy of academic background with COSI requirements	20%
<i>Track-record</i>	30%
Research projects / Professional experience / Former international experience	20%
Recommendation (academic and professionals)	10%
<i>Motivation (as per cover letter)</i>	20%
English proficiency (as per cover letter + test scores)	Discriminating variable (pass/fail)

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European

research and

# How to finance your Master degree?

Participation costs for 2018/2020 intake are set as follows:

6,000 Eur (Programme country)

## Erasmus + EMJMD scholarships

Please note that we are currently applying for a new financment from the European Union. We are unable to guarantee that there will be Erasmus+JMD scholarship for 2018-2019.(apply before 03/03/2017)

- > covers all the duration of the programme (24 months)
- > 32,000 € for European students
- > 45,000 € for non-European students
- # scholarship/s available for 2017-2019
- > 4 scholarships for European students
- > 10 scholarships for non-European students

## 50 % fee-waivers (halving of participation costs)

(apply before 10/03/2018)

- > covers all the duration of the programme (24 months)
- > 3,000 € for European students
- > 7,000 € for non-European students

## COSI scholarships

(apply before 10/03/2018)

- > granted for the first year of the programme
- > 10,500 € for non-EU students
- > 6,500 € for EU-students

## Additional financial support & scholarships

## Explo'ra scholarships

(apply during semester 2 and 3)

- > cover the second year of the programme
- > 1,615 € for semester 3 and 1,615 € during the Master Thesis
- # scholarship/s available for 2017-2019 = to be confirmed, usually most students are awarded this scholarship

## Master Thesis allowances

Work placement during semester 4 is generally paid. It is for instance legally compulsory to pay trainees at least 550 € per month in France. We'll strive to ensure that our industrial and academic partners provide at least this amount to trainees as a minimum. Most of our industrial partners offer internships that provide substantial allowances packages above this minimum, and up to 1,200 € per month

## COSI scholarships

COSI scholarships are for the two years of the programme :

- > 10,500€ for the two years for non-EU students
- >6,500€ for the two years for EU students



# EUROPEAN MASTER'S DEGREES IN COLOUR SCIENCE



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- STUDENT AFFAIRS
- NEWS



We are an **European academic consortium in colour science** offering 2 Master's Degrees designed and operated by an unique world leading university-business cooperation of 4 European universities, 5 Asian universities and 15 industrial leaders across the globe:

COSI / COLOUR IN SCIENCE AND INDUSTRY /



a two-year scientific **Erasmus+ Joint Master's Degree**, aiming to train the next generation of highly-skilled industrial experts in applied colour science, in various cutting-edge industries (photonics, optics, spectral imaging, multimedia technologies, computer graphics and vision) in a diverse range of sectors (including multimedia, health care, cosmetic, automotive, food-processing). The two areas of focus are spectral technologies and applied colour imaging.

[ **CALL FOR APPLICATIONS FOR 2017-2018 intake open!** The deadline for EMJD scholarships is 15/03/2017. Self-financed students can apply till 15/05/2017 (non-Eu students) and 30/06/2017 (EU students) ]

APPLY

CIMET / COLOUR IN INFORMATICS AND MEDIA TECHNOLOGY /

a two-year research Master's Degree in fundamental color science, preparing students for a doctoral research and engaging them to undertake cutting-edge research projects in photonics, computer vision & imaging science, computer science & multimedia technology. The programme leads graduates to research projects in the academic or research industry.

<http://master-colorscience.eu/>

NO CALL FOR APPLICATIONS in 2017

APPLY

