

## 220280 - Heat and Mass Transfer

Coordinating unit: 205 - ESEIAAT - Terrassa School of Industrial, Aerospace and Audiovisual Engineering  
 Teaching unit: 724 - MMT - Department of Heat Engines  
 Academic year: 2019  
 Degree: MASTER'S DEGREE IN INDUSTRIAL ENGINEERING (Syllabus 2013). (Teaching unit Optional)  
 ECTS credits: 5 Teaching languages: Catalan, Spanish

### Teaching staff

Coordinator: Oliva Llena, Asensio  
 Others: Perez Segarra, Carlos David  
 Castro Gonzalez, Jesus  
 Trias Miquel, Francesc Xavier

### Degree competences to which the subject contributes

Specific:

1. Knowledge and ability to analyze the processes of heat transfer that allows the design and calculation of equipment and thermal applications.

Transversal:

2. EFFECTIVE USE OF INFORMATION RESOURCES: Managing the acquisition, structuring, analysis and display of data and information in the chosen area of specialisation and critically assessing the results obtained.

### Teaching methodology

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### Learning objectives of the subject

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### Study load

Total learning time: 125h	Hours large group:	30h	24.00%
	Hours small group:	15h	12.00%
	Self study:	80h	64.00%

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### Content

(ENG) Mòdul 1: Introducció. Transferència de calor per conducció	Learning time: 40h Theory classes: 10h Laboratory classes: 5h Self study : 25h
(ENG) Mòdul 2: Transferència de calor per radiació	Learning time: 40h Theory classes: 10h Laboratory classes: 5h Self study : 25h
(ENG) Mòdul 3: Transferència de calor per convecció	Learning time: 45h Theory classes: 10h Laboratory classes: 5h Self study : 30h

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### Planning of activities

(ENG) Classes de Teoria	Hours: 37h Laboratory classes: 2h Self study: 15h Theory classes: 20h
(ENG) Classes de problemes	Hours: 53h Theory classes: 10h Laboratory classes: 13h Self study: 30h
(ENG) Treball de curs	Hours: 30h Self study: 30h
(ENG) Examen primer parcial	Hours: 2h Theory classes: 2h
(ENG) Examen 2on parcial (final)	Hours: 3h Theory classes: 3h

### Qualification system

xx

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### Bibliography

#### Basic:

- Eckert, E.R.G.; Drake, R.M. Analysis of heat and mass transfer. Washington: Hemisphere, 1972. ISBN 0891165533.
- Incropera, F.P.; DeWitt, D.P. Fundamentos de transferencia de calor. 4ª ed. México: Prentice Hall, 1999. ISBN 9701701704.
- Mills, Anthony F. Transferencia de calor. México DF [etc.]: Irwin, 1995. ISBN 8480861940.
- Kreith, F.; Bohn, M.S. Principios de transferencia de calor. 6a ed. Madrid: International Thomson, cop. 2002. ISBN 8497320611.
- Lienhard IV, J.H.; Lienhard V, J.H. A heat transfer textbook [on line]. 3rd ed. Cambridge: Phlogiston Press, 2001 [Consultation: 12/05/2014]. Available on: <<http://web.mit.edu/lienhard/www/ahtt.html>>.

#### Complementary:

- Patankar, Suhas V. Numerical heat transfer and fluid flow. Washington: New York: Hemisphere; McGraw-Hill, cop. 1980. ISBN 9780891165224.
- Rohsenow, W.M.; Hartnett, J.P; Cho, Y.I. (eds.). Handbook of heat transfer. 3rd ed. New York [etc.]: McGraw-Hill, cop. 1998. ISBN 0070535558.
- Bradshaw, Peter. An introduction to turbulence and its measurement. Oxford; New York: Pergamon Press, 1971. ISBN 080166202.
- Libby, Paul A. Introduction to turbulence. Bristol, PA: Taylor & Francis, 1996. ISBN 1560321008.
- Cebeci, T.; Bradshaw, P. Physical and computational aspects of convective heat transfer. New York: Springer, 1984. ISBN 0387120971.
- Wilcox, David C. Turbulence modelling for CFD. 2nd ed. La Cañada, CA: DCW Industries, 1998. ISBN 0963605151.

#### Others resources:

##### Audiovisual material

- Apunts fets pel professorat de l'assignatura
- Resource