



Program	13IF – [Bachelor’s Degree in Forest Engineering] and 13MN – [Bachelor’s Degree in Natural Environment]
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Course number and name	
Number	[135001760] and [135002704]
Name	Uses of Medicinal and Aromatic Plants (MAP)
Semester	S7 [(September-January)]

Credits and contact hours	
ECTS Credits	3
Contact hours	30

Coordinator's name	Carlos Calderón (carlos.calderon@upm.es)
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Specific course information
Description of course content Medicinal aromatic plants belong to a big plant group with a great interest due to its pharmaceutical, cosmetic, and nutritious application and they are also an alternative to traditional crop with species in high demand at the current international market. It is expected to give basic knowledge and skills related to production and chemical features of essences and extracts from local plants in Spain. The main purpose of this course is that students have an approach to economic importance, uses, botany and harvested processes of the most significant medicinal aromatic and seasoning specie plants.
List of topics to be covered <ol style="list-style-type: none">1. Introduction. Identification of Potential MAPS.2. Active Principles in MAPs.3. History and classification of MAPs.4. Production and marketing.5. Raw Material and plant processing.6. Industrial utilization of MAPs. Essential oils.7. Industrial uses of MAPs. Cosmetic industry8. Industrial uses of MAPs. Food processing industry9. Industrial uses of MAPs. The pharmaceutical sector10. Uses of MAPs. Perfume and cosmetic sector.11. Other uses of MAPs.12. Chemical Analysis and Quality control of MAPs.13. Medicinal and Aromatic Plants Sustainable Assessment14. Economic Valuation of Environmental Services Provided by Medicinal, Aromatic and Dye Plants



15. Principles of medicinal and aromatic plant (MAPs) propagation, production and collection. Eg. <i>Artemisia absinthium</i> L.	
Prerequisites or co-requisites	
None.	
Course category in the program	
<input type="checkbox"/> R (required)	<input checked="" type="checkbox"/> E (elective) <i>(elective courses may not be offered every year)</i>

Specific goals for the course
Specific outcomes of instruction
CE 4.6 - Ability to know, understand and use the principles of: Forestry non-wood raw materials. CE 4.7 - Ability to know, understand and use the principles of: Industrial processes of non-wood products: cork, resin, and essential oils. CT 10 - Environmental awareness: It is the set of knowledge, abilities, skills and attitudes, useful for interacting with the environment, ethically, responsibly and sustainably, in order to avoid or lessen the negative effects produced by the inappropriate practices caused by human activities, and to promote the benefits that professional activity can generate in the environmental field, taking into account its economic and social implications. CT 5 - Bibliographic search and analysis of documentation. RA540 - Attainment of competences in the field of medicinal and aromatic plants.

Bibliography and supplemental materials
<ul style="list-style-type: none">- Industrial Uses of MAPs: Cosmetic Industry. MP Arraiza, C Calderón-Guerrero, SC Guillén... Medicinal and Aromatic Plants: The Basics of Industrial Application (Frontiers in Horticulture Book 1) - Kindle edition by Paz Arraiza, M., González-Coloma, A., Calderón-Guerrero. C. (2017)- Active principles in MAPs. MP Arraiza, C Calderón-Guerrero, SC Guillén... - Medicinal and Aromatic Plants: The Basics of Industrial Application (Frontiers in Horticulture Book 1) - Kindle edition by Paz Arraiza, M., González-Coloma, A., Calderón-Guerrero. C. (2017)- Industrial Uses of MAPs: The Pharmaceutical Sector. MP Arraiza, C Calderón-Guerrero, SC Guillén... - Medicinal and Aromatic Plants: The Basics of Industrial Application (Frontiers in Horticulture Book 1) - Kindle edition by Paz Arraiza, M., González-Coloma, A., Calderón-Guerrero. C. (2017)- Chemical Analysis and Quality Control of MAPs. MP Arraiza, C Calderón-Guerrero, SC Guillén... - Medicinal and Aromatic Plants : The Basics of Industrial Application (Frontiers in Horticulture Book 1) - Kindle edition by Paz Arraiza, M., González-Coloma, A., Calderón-Guerrero. C. (2017)- Other Uses of MAPs. MP Arraiza, C Calderón-Guerrero, SC Guillén... Medicinal and Aromatic Plants: The Basics of Industrial Application (Frontiers in Horticulture



Book 1) - Kindle edition by Paz Arraiza, M., González-Coloma, A., Calderón-Guerrero. C. (2017)

Teaching methodology			
<u>X</u> lectures	— problem solving sessions	— collaborative actions	<u>X</u> laboratory sessions
Other:			