UNIVERSIDADE FEDERAL DE MINAS GERAIS
Programa de Pós-Graduação em Engenharia Mecânica - PPGMEC
Av. Antônio Carlos, 6627 – Campus Pampulha
CEP: 31.270.901 – Belo Horizonte – MG – Brasil

EMA865 Turma A – Microwave Heating Technology Applications

Créditos: 01

Carga Horária: 15 horas

Professor Responsável: Prof. Dr. Guo, Chen - KMUST, Kunming, China

Avaliação: Participação nas atividades das aulas.

Local: Sala 1010 (sala de seminários, Bloco de Ligação, EEUFMG)

Programa:

Day	Time	Topic
Monday (01/10)	8:30- 11:30	Fundamental and Advanced Topics in Microwave Heating Technology
Tuesday (02/10)	8:30-11:30	Microwave Heating Mechanisms
Wednesday (03/10)	8:30-11:30	Plasma Applications; Microwave Chemistry
Thursday (04/10)	8:30-11:30	Preparation of activated carbon in pilot-scale microwave heating equipment
Friday (05/10)	8:30-11:30	Microwave assisted Mineral Processing High Power Microwave Industrial Application in KMUST

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EMA865 Turma B – Special Topics in Solar Meteorology Applied to Conditioning Environments

Créditos: 01

Carga Horária: 15 horas

Professor Responsável: Prof. Dr. Carlos F. M. Coimbra, University of California, San Diego –UCSD

Avaliação: Participação nas atividades das aulas.

Programa:

Dia 17/09/2012, Sala de Seminários da EE 1010, das 9:00 às 12:00 horas.

Energy policy; solar energy availability; economics renewable resources; solar variability; ramp rate frequencies; atmospheric transmittance; solar constant, solar geometry; solar heating, solar cooling, solar power; PV/CPV/CSP technologies; US-Brazil parallels.

Dia 18/09/2012, Sala de Seminários da EE 1010, das 9:00 às 12:00 horas.

Surface energy balance; radiation budget; thermal emission; net radiation; radiative cooling at cloud top; sensible and latent heat flux; atmospheric boundary layer (ABL) structure.

Dia 20/09/2012, Sala de Seminários da EE 1010, das 9:00 às 12:00 horas.

The global heat engine; solar-wind coupling at planetary scales; Gordon-Zarmi models; tidal winds and zonal winds; maximum efficiency of solar-wind conversion.

Dia 21/09/2012, Sala de Seminários da EE 1010, das 9:00 às 12:00 horas.

Solar forecasting using ground instruments, weather databases and stochastic learning.

Dia 24/09/2012, Sala de Seminários da EE 1012, das 9:00 às 12:00 horas.

Solar forecasting with sky imaging and remote sensing; smart forecasts; GOES-W, NWS, NOAA, INPE and INEMET databases; discussion of research assignments.

Bibliografia:

Livros

1) A. de Vos (2008) Thermodynamics of Solar Energy Conversion, Wiley-VCH.
2) G. W. Petty (2006) A First Course in Atmospheric Radiation, 2nd Ed., Sundog Publishing.
3) G. W. Petty (2008) A First Course in Atmospheric Thermodynamics, Sundog Publishing.
4) R. B. Stull (2000) Meteorology for Scientists and Engineers, Brooks/Cole Cengage Learning.

Artigos

Journal papers: Gordon & Zarmi, 1989; Fischer & Hoffman, 2004; Barranco-Jimenez, Chimal-Eguia & Angulo-Brown, 2006; Marquez and Coimbra (2011); Marquez and Coimbra (2012a); Marquez and Coimbra (2012b); Pedro and Coimbra (2012a); Marquez, Pedro and Coimbra (2012).