

ICGEE Curriculum available for 2011/2012 Academic Year

Polymer Materials

Module Title:	Polymer Materials
Module Status:	Available in second semester 2011/2012 academic year.

Generic Module Information:

Name of module owner/lecturer?	Dr. Clement L. Higginbotham
Delivery mode: e.g. on-site, on-line, mixed-mode. For on-site specify contact hours per week	Mixed-mode: On-line lectures and on-site laboratory workshop in AIT (date & time of the lab workshop to be confirmed on first online meeting with students). Assignments.
Duration of the module:	One semester consisting of 12 hours lectures, 30 hours assignments, 6 hours laboratory practical.
Assessment methods and weightings where relevant:	Continuous assessment (based on assignment submissions)
Pass standard:	40%
Penalties for late submission of continuous assessment work:	Where work is submitted up to and including 7 days late, the maximum mark obtainable is reduced by 10%. Where work is submitted up to and including 14 days late, the maximum mark obtainable is reduced by 20%. Where work is submitted 15 days late or more, the maximum mark obtainable is reduced by 50%.
Number of ECTs or institutional credits assigned to the module:	5 credits
Course Content or Syllabus (Optional):	<ul style="list-style-type: none"> • Introduction to polymer materials, • Review of polymerisation methods, • Molecular weight determination, • Property modification and the use of additives, • Developments in commodity polymers, • Composites, • Speciality polymers, • Specialised applications, • Diffusion control, Environmental aspects of polymers, • New trends and developments in speciality polymers, • Nanomaterials.
Learning Outcomes	<p>At the end of this module the student will be able to:</p> <ul style="list-style-type: none"> • Have an enhanced knowledge and understanding of polymeric materials • To know general relationships between structure, properties and applications • Interpret and evaluate the underlying concepts and principles of material selection for advanced polymer applications • Use acquired analytical and characterisation skills at an advanced level to undertake research activities on speciality polymers • Solve technically complex problems relevant to the evaluation of material properties • Communicate information and observations using

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	<p>appropriate terminology through the preparation of written scientific reports</p> <ul style="list-style-type: none"> • Demonstrate a systematic understanding and critical awareness of new materials and their applications
Recommended Text	<p>“Plastics materials”, Brydson, Butterworth-Heinemann, 1999</p>
Supplementary Texts	<ul style="list-style-type: none"> • “Advanced polymeric materials: Structure property relationships”, Shonaiki and Advani, CRC, 2003 • “High performance polymers”, Johannes Karl Fink, William Andrew Publishing, 2008 • “The chemistry of polymers”, Nicholson, RSC, 1997 • “Introduction to nanotechnology”, Poole and Owens, Wiley, 2003 • “Polymer analysis”, Stuart, Wiley, 2002