(1) **KodKursus :** **KKKM4573**
Course Code :

(2) **Nama Kursus:** **Pemprosesan Polimer**
Course Title : *Polymer Processing*

(3) **Tarafkursus:** **Jabatan (Pilihan)**
Course definition : *Department (Elective)*

(4) **Sinopsis:**
Synopis :

Objektif kursus ialah untuk menyampaikan dengan secara teori dan praktik serta pengalaman hands-on tentang proses pembentukan bahan polimer serta polimer tertetulang. Pendekatan yang diambil ialah dengan menilai proses pembentukan berdasarkan bahan dan reka bentuk komponen. Tiga aspek utama yang dinilai ialah bentuk,saiz serta bahan untuk penentuan proses pembentukan.. Proses pembentukan disaji secara beberapa unit operasi asas pemprosesan lebur dalam pengacuanan suntikan, penyemperitan (profil dan proses pembetukan pasca-dai) pengacuanan mampatan dan proses pembentukan lain dalam polimer tertetulang. Pendekatan unit operasi asas ialah strategi pembentukan dengan analisis proses. Analisis lebur diperkenal, dibincang dan diaplikasi untuk analisis setiap unit operasi pembentukan. Kaedah pembentukan dikaji dalam tiga peringkat iaitu pra-pembentukan seperti pengadunan dan pembentukan baya induk, pembentukan iaitu menjadikan komponen sehampir mungkin bentuk akhir serta pasca-pembentukan seperti hiasan dan salutan. Percampuran dibincang secara khusus kerana proses pra dan pembentukan melibatkan percampuran. Pelajar diminta menyediakan sebuah projek mini yang melibatkan pilihan komponen,pilihan bahan sesuai untuk pembentukan , pembentukan serta upaya pengeluaran.

The objective of this course is to deliver the theoretical and practical experience and hands-on process of formation of polymer materials and reinforced polymer. The approach taken is to assess the formation process based on materials and design components. Three main aspects that are evaluated i.e. shape, size and material to the determination process of formation. Formation process is divided into several basic operating units, namely the injection molding process in melt stage, extrusion (profiling and post-die shaping process) compression molding and some other processes in the reinforced polymer fabrication. Basic unit operation approach is the formation strategy with the process analysis. Melt analysis is introduced, discussed and applied to analyse each formation operation unit. The formation methods are studied in three stages, namely pre-forming such as compounding and forming of master polymer materials, the near net shape forming and post-die forming decorative coatings. Mixing process will be discussed specifically because the pre-forming and forming processes involve the mixing process. Students are

required to propose a mini-project involving the component selection, material selection that suitable for the formation, forming process and production ability.

(5) Pra-keperluan(jika ada):
Pre-requisite (if any) :

KKKM1513 Sains Bahan
KKKM1513 Material Science

(6) BacaanAsas:
References:

Crawford, R.J., 1998, *Plastics Engineering*. 3rd Edition. Pergamon Press. London.
Mc.Rum, N.G, Buckley, C.P and Bucknall, C.B., 1997, *Principles of Polymer Engineering*. Oxford Science Publishers, Oxford.
Strong, B. A., 2007, *Plastics :Materials and manufacturing* . Wiley.
Tadmor, Z., Gogos, C.G., 2006, *Principles of Polymer Processing*, 2nd Editon. Wiley-Interscience.
Rauwendaal, C., 2001, *Polymer Extrusion*, 4th Edition. Hanser Gardner Publication