

Assignment manufacturing process

[Business](#), [Industries](#)



FACULTI OF MECHANICAL ENGINEERING UNIVERSITI MALAYSIA PAHANG

BMM3643 (Sem II 2012/13) Assignment #4 1. a) What distinguishes

machining from other manufacturing processes? b) What is a machining

center? c) How important is the control of cutting-fluid temperature in

operations performed in machining centers? Explain. (8 marks) 2. a) What

are the primary considerations in tool selection? b) What is the advantage of

a helical-tooth cutter over a straighttooth cutter for slab milling? c) What are

the consequences if a cutting tool chips? (8 marks) 3.) Why might it be

desirable to use a heavy depth of cut and a light feed at a given speed in

turning? b) Explain the reasoning behind the various design guidelines for

turning. c) In drilling, the deeper the hole, the greater the torque. Why? (8

marks) 4. a) For producing flat surfaces in mass production machining, how

does face milling differ basically from peripheral milling? b) Why is end

milling such an important versatile process? c) Why is grain spacing

important in grinding wheels? Explain the relationship between grit size and

surface finish. (8 marks) 5.) Why has the wire-EDM process become so

widely used in industry, especially in tool and die manufacturing? Explain. e)

What is meant by the term overcut in electric discharge machining? f) What

is the nature of the surface obtained by electro discharge machining? (8

marks) 6. g) Estimate the time required for face milling an 20. 32 cm-long, 7.

62 cm-wide brass block using a 2032 cm-diameter cutter with 12 HSS teeth.

(Given: Using the high-speed-steel tool, let's take a recommended cutting

speed for brass (a copper alloy) at 90 m/min = 1. 5 m/sand the maximum

feed per tooth as 0. mm) h) In a surface grinding operation performed on

hardened plain carbon steel, the grinding wheel has a diameter = 200 mm

and width = 25 mm. The wheel rotates at 2400 rev/min, with a depth of cut (infeed) = 0.05 mm/pass and a crossfeed = 3.50 mm. The reciprocating speed of the work is 6 m/min, and the operation is performed dry. Determine ; i) the length of contact between the wheel and the work, ii) the volume rate of metal removed. iii) If there are 64 active grits/cm² of wheel surface, estimate the number of chips formed per unit time. (10 marks)