



## UNIVERSITI TEKNOLOGI MARA

### BCT554: MANUFACTURING TECHNOLOGY

<b>Course Name (English)</b>	MANUFACTURING TECHNOLOGY <b>APPROVED</b>
<b>Course Code</b>	BCT554
<b>MQF Credit</b>	4
<b>Course Description</b>	The general aims of the course is to provide sufficient knowledge and understanding of the manufacturing technology in terms of production planning and control, machining process and manufacturing tools and also quality control. The course will include exposure to deal with relevant parties involved in manufacturing of IBS components. The students will be exposed to the principle of Industrialised Building System (IBS) followed by the method of manufacturing technology and IBS standards.
<b>Transferable Skills</b>	<ol style="list-style-type: none"><li>1. Ability to explain the manufacturing process of IBS components in construction industry</li><li>2. Ability to report and present the the manufacturing process of IBS components in construction industry</li><li>3. Ability to construct mechanised device in the manufacturing of an IBS component that can be commercialised in the construction industry</li></ol>
<b>Teaching Methodologies</b>	Lectures, Lab Work, Field Trip, Tutorial, Discussion, Workshop
<b>CLO</b>	<p>CLO1 To be able to explain the process of manufacturing IBS components in the construction industry</p> <p>CLO2 To be able to communicate effectively and write good report on IBS components manufacturing process in the construction industry.</p> <p>CLO3 To be able to demonstrate entrepreneurship skill both verbally and written on commercialisation of mechanised device in IBS component manufacturing.</p>
<b>Pre-Requisite Courses</b>	No course recommendations
<b>Topics</b>	
<b>1. Introduction to manufacturing process</b> 1.1) Definition 1.2) Scope and objective of manufacturing process 1.3) Strategy and Productivity	
<b>2. Overview of plant layout</b> 2.1) Introduction and definition 2.2) Select a suitable location 2.3) Factors influencing plant and facilities location 2.4) Classification of plan layout	
<b>3. Overview of material handling and management</b> 3.1) Introduction and definition 3.2) Objectives and principles of material handling 3.3) Selection of materials handling equipment 3.4) Material planning and control 3.5) Inventory control	
<b>4. Production planning and control</b> 4.1) Introduction and objectives of production planning and control 4.2) Stages of production planning and control: planning stage (shop drawing by consultants), action phase (manufacturing process) and control phase (quality control)	

**5. Machining process and manufacturing tools**

- 5.1) Introduction and definition
- 5.2) Fundamentals of machining process
- 5.3) Methods of machining process such as offsite or onsite production, offsite or onsite manufacturing and offsite or onsite fabrication
- 5.4) Manufacturing tools, machineries and plant
- 5.5) Advanced machining process and manufacturing tools

**6. Quality control**

- 6.1) Introduction and definition
- 6.2) Objectives of inspection, types of inspection and methods of inspection
- 6.3) Quality control (IBS Standard)
- 6.4) Objectives of quality control, types of quality control, steps in quality control and benefits of quality control including QA, QC and QMS in IBS manufacturing processes.

**7. Implementation of manufacturing IBS components**

- 7.1) Mechanised device in the manufacturing of an IBS component that can be commercialised in the construction industry.

Assessment Breakdown	%
Continuous Assessment	100.00%

Details of Continuous Assessment	Assessment Type	Assessment Description	% of Total Mark	CLO
	Assignment	Presentation on the process in the manufacturing of IBS components in construction industry.	20%	CLO2
	Test	Written test require students to explain the process in the manufacturing of IBS components in construction industry.	30%	CLO1
	Test	Written report on the process in the manufacturing of IBS components in construction industry.	30%	CLO1
	Visual Assessment	Demonstration of constructed mechanised device in the manufacturing of an IBS component that can be commercialised in the construction industry to emphasize the “entrepreneurship skills”	20%	CLO3

Reading List	Recommended Text	<ul style="list-style-type: none"> <li>• Thomas Friedli, Andreas Mundt, Stefan Thomas 2014, <i>Strategic Management of Global Manufacturing Networks</i>, Springer [ISBN: 3642341845]</li> <li>• Kim S. Elliott, Colin Jolly 2014, <i>Multi-Storey Precast Concrete Framed Structures</i>, Wiley-Blackwell [ISBN: 140510614X]</li> <li>• R.B. KHANNA 2015, <i>PRODUCTION AND OPERATIONS MANAGEMENT</i>, PHI Learning Pvt. Ltd. [ISBN: 9788120351219]</li> <li>• Hubert Bachmann, Alfred Steinle, Philip Thrift 2019, <i>Precast Concrete Structures</i>, Ernst &amp; Sohn [ISBN: 9783433032251]</li> <li>• H. R. (Trey) Hamilton, Charles W. Dolan 2018, <i>Prestressed Concrete</i>, Springer [ISBN: 9783319978819]</li> <li>• John H. Bungey, Michael G. Grantham 2014, <i>Testing of Concrete in Structures</i>, CRC Press [ISBN: 9781482264685]</li> </ul>
Article/Paper List	This Course does not have any article/paper resources	
Other References	This Course does not have any other resources	