

1	Course Name:	SMART MANUFACTURING													
	Course Code:	SFB36604													
	Course Classification:	Major (core)													
2	Synopsis:	This course will cover Industry 4.0 framework and architecture. Key elements in Industry 4.0 such as system integration, simulation, big data, Internet of Things, additive manufacturing and autonomous robotic are covered briefly in 5 major topics. Besides that, the architecture of Industry 4.0 implementation which consists of 5 levels; configuration level, cognition level, cyber level, conversion level, connection level are included in this course.													
3	Name(s) of Academic Staff:	1	Assoc. Prof. Dr. Muhamad Husaini Abu Bakar												
		2	Dr Ahamad Zaki Mohamed Noor												
		3													
4	Semester and Year offered:	Year Offered	3	Semester	1	Remarks:									
5	Credit Value:	4													
6	Pre-requisite/ co-requisite (if any):														
7	Course Learning Outcomes (CLO)	CLO1	Describe the importance of smart manufacturing components in industrial plant. (P1, PLO4)												
		CLO2	Assemble appropriate smart manufacturing components for industrial plant. (P3, PLO5)												
		CLO3	Propose smart manufacturing applications towards sustainability of the environment. (A2, PLO6)												
8	Mapping of the Course Learning Outcomes to the Programme Learning Outcomes, Teaching Methods and Assessment Methods														
	Course Learning Outcomes	Programme Learning Outcomes (PLO)											Teaching Methods	Assessment Methods	
		PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PLO 11			
	CLO1				√									Practical	Practical Tests
	CLO2					√								Practical	Technical Reports
	CLO3						√							Practical	Project
	Mapping with MQF Cluster of Learning Outcomes				C3A	C3A	C3B								
Indicate the primary causal link between the CLO and PLO by ticking '√' in the appropriate box.															
C1 = Knowledge & Understanding, C2 = Cognitive Skills, C3A = Practical Skills, C3B = Interpersonal Skills, C3C = Communication Skills, C3D = Digital Skills, C3E = Numeracy Skills, C3F = Leadership, Autonomy & Responsibility, C4A = Personal Skills, C4B = Entrepreneurial Skills, C5 = Ethics & Professionalism															
9	Transferable Skills (if applicable)														
	(Skills learned in the course of study which can be useful and utilized in other settings)														
	1	Personal Skills													
	2														
	3														
	Open-ended response (if any)														
	4	Problem solving													

[illegible]

Note:

* Indicate the CLO based on the CLO's numbering in Item 8

** For ODL programme: Courses with mandatory practical requirements imposed by the programme standards or any related standards can be exempted from complying to the minimum 80% ODL delivery rule in the SLT.

11	Identify special requirement or resources to deliver the course (e.g., software, nursery, computer lab, simulation room etc)	Matlab Software and Computer Lab
12	References (include required and further readings, and should be the most current)	1. Anthony Tarantino (2022). Smart Manufacturing: The Lean Six Sigma Way,WILEY
13	Other additional information (if applicable)	
Note: Number of PLO indicated is purely for illustration purposes only and the number is subjected to the curriculum design.		