

1.	Name of Course/Module	Natural Language Processing	
2.	Course Code	TNL 2391	
3.	Status of Subject	Major for B.IT Artificial Intelligence	
4.	MQF Level/Stage	Bachelor Degree – MQF Level 6	
5.	Version (state the date of the last Senate approval)	June 2012	
6.	Requirement for Registration	TAI 2371 Artificial Intelligence II	
7.	Name(s) of academic/teaching staff	Ong Lee Yeng Lee Chin Poo	
8.	Semester and Year offered	Trimester 2 (Delta Level)	
9.	Objective of the course/module in the programme :		
	To introduce students to the field of natural language processing. Students will learn the formal descriptions of natural language (such as English), and to algorithms and data structures based on the formal description, to build a small natural language processing systems by using the Prolog programming language.		
10.	Learning Outcomes :		
	At the completion of the subject, students should be able to:		
	LO1: Explain the basic notation in natural language processing (Cognitive, Level 2)		
	LO2: Identify the issues encountered in natural language processing system (Cognitive, Level 4)		
	LO3: Analyse the syntactical structure and semantic of sentences (Cognitive, Level 4)		
	LO4: Design a simple natural language processing system (Cognitive, Level 5)		
11.	Synopsis:		
	This course provides the fundamental techniques of natural language processing, to develop an understanding of the limits of those techniques and of current research issues, and to evaluate some current and potential applications.		
	Kursus ini adalah berkenaan dengan asas teknik-teknik pemprosesan bahasa tabie. Ia juga membina kefahaman tentang had teknik-teknik itu, serta isu dan aplikasi semasa bidang ini.		
12.	Mapping of Subject to Programme Outcomes :		
	Programme Outcomes		% of Contribution
	PO1: Apply soft skills in work and career related activities		25.00
	PO7: Demonstrate knowledge and understanding of essential facts, concepts, principles, and theories relating to artificial intelligence		37.50
	PO8: Apply principles and knowledge of artificial intelligence in relevant areas		37.50
13.	Assessment Methods and Types :		
	Method and Type	Description/Details	Percentage
	Test		20.00%
	Assignment	Report & Presentation	20.00%
	Final Exam	Structured Questions	60.00%

14.	Details of Subject		
	Topics		Mode of Delivery
		Lecture	Laboratory
	1. Overview of Natural Language Processing Definition, History of Natural Language Processing, Different Levels of Language Analysis [Phonology, Morphology, Syntax, Semantics, and Pragmatics], Applications [Text-based, and Dialogue-based, Natural Language Front Ends to Databases or Knowledge-based Systems, Text Generation, Machine Learning, Grammar Checker, and Speech Recognition and Synthesis], Organisation of Natural Language Understanding.	3	6
	2. Linguistic Background Basic English Syntax [Words, Phrase Structure such as Noun Phrases, Verb Phrases, Adjective Phrases, Adverbial Phrases Morphology and the Structure of Words, Grammar Structure].	2	4
	3. Representation of Grammar Tree Structure, Context Free Grammar (CFG) and, Transition Network Grammar, Transforming the Grammar Structures into Prolog.	2	4
	4. Syntactic Analysis Parsing Technique [Top-down, Bottom-up, and Left-corner, Recursive Transition Network (RTN) and Augmented Transition Network (RTN) Parsers, Chart Parsers, Features and Unification, toward Efficient Parsing].	13	10
5. Semantics Analysis Philosophical Issues in Semantics, Semantics and Logical Form for English, Others Semantic Interpretation [Case Grammar, Semantic Grammar, and Conceptual Dependency, Discourse and Anaphora Problems].	8	4	
Total	28	28	
15.	Laboratory		
	<ul style="list-style-type: none"> • Converting Grammar Structure into Prolog representation. • Checking Grammar of English Sentences. • Chart Parsing Techniques. 		
16.	Total Student Learning Time (SLT)	Face to Face (Hour)	Total Guided and Independent Learning
	Lecture	28	28
	Laboratory	28	14
	Presentation	1	1
	Assignment	-	12

	Mid Term Test	1	3
	Final Exam	2	20
	Sub Total	60	78
	Total SLT	138/40 = 3.45 => 3	
17.	Credit Value	3	
18.	Reading Materials :		
	Textbook	Reference Materials	
	1. Daniel Jurafsky, James H. Martin. "Speech and Language Processing", 2/E, Prentice Hall 2009.	1. Covington, M. A, "Natural Language Processing For Prolog Programmers", Prentice-Hall, 1994.	
19.	Appendix (to be compiled when submitting the complete syllabus for the programme) :		
	<ol style="list-style-type: none"> 1. Mission and Vision of the University and Faculty 2. Mapping of Programme Objectives to Vision and Mission of Faculty and University 3. Mapping of Programme Outcome to Programme Objectives 4. Programme Objective and Outcomes (Measurement and Descriptions) 		