

SUMMARY OF INFORMATION ON EACH COURSE

1.	Name of Course	Natural Language Processing	
2.	Course Code	TNL3221	
3.	Status of Course [Applies to (cohort)]	Specialisation Core for B.IT (Hons) Artificial Intelligence	
4.	MQF Level/Stage Note : <i>Certificate – MQF Level 3</i> <i>Diploma – MQF Level 4</i> <i>Bachelor – MQF Level 6</i> <i>Masters – MQF Level 7</i> <i>Doctoral – MQF Level 8</i>	Bachelor Degree – MQF Level 6	
5.	Version (State the date of the Senate approval – history of previous and current approval date)	Date of previous version :	May 2015 Date of current version : June 2016
6.	Pre-Requisite	TAI2151 Artificial Intelligence Fundamentals	
7.	Name(s) of academic/teaching staff	Lee Chin Poo Ong Lee Yeng	
8.	Semester and Year offered	Trimester 2, Year 3	
9.	Objective of the course 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.	Justification for including the course in the programme : Natural language processing is a major component for building an artificial intelligence system. This course will provide students with the fundamental techniques of natural language processing, an understanding of the limits of those techniques and the current research issues. Students will be able to evaluate various potential applications in natural language processing.		
11.	Course Learning Outcomes :	Domain	Level
	LO1 Explain the basic concepts in natural language processing.	Cognitive	2
	LO2 Solve the problems of natural language processing.	Cognitive	3
	LO3 Apply the various techniques of natural language processing.	Cognitive	3
	LO4 Design and develop a natural language processing system.	Cognitive	5

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12.	Mapping of Learning Outcomes to Programme Outcomes :								
	Learning Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
	LO1							X	
	LO2							X	
	LO3	X						X	X
LO4	X						X	X	
13.	Assessment Methods and Types :								
	Method and Type	Description/Details						Percentage	
	Quiz	Written quiz						10%	
	Mid Test	Written test						20%	
	Assignment	System and Report						30%	
Final Exam	Written examination						40%		
14.	Mapping of assessment components to learning outcomes (LOs)								
	Assessment Components	LO1	LO2	LO3	LO4				
	Quiz	14	10						
	Mid Test	29	20						
	Assignment		30	100	100				
Final Exam	57	40							
15.	Details of Course								
	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.						2	2	
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].						4	4		
3. Representation of Grammar Tree Structure, Context Free Grammar (CFG) and, Transition Network Grammar, Transforming the Grammar Structures into Prolog.						6	6		

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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].		8	8
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].		4	4
TOTAL		24	24
Total Student Learning Time (SLT)	Face to Face / Guided Learning	Independent Learning	
Lecture	24	24	
Tutorials	-	-	
Laboratory/Practical	24	12	
Presentation	-	-	
Assignment	-	11	
Mid Term Test	1	3	
Quiz	4 times	4	
Final Exam	2	15	
Sub Total	51	69	
Total SLT	120		
16. Credit Value	3		
17. Reading Materials :			
	Textbooks		
	Daniel Jurafsky, James H. Martin (2014). Speech and Language Processing: An Introduction to Natural Language Processing (2nd ed.). Prentice Hall.		
	Reference Material (including 'Statutes' for Law)		
	Daniel Jurafsky, James H. Martin (2009). Speech and Language Processing (2nd ed.). Prentice Hall.		
	Bird, S., Klein, E., & Loper, E. (2009). Natural language processing with Python. O'Reilly Media, Inc..		

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Appendix (to be compiled when submitting the complete syllabus for the programme) :

1. Mission and Vision of the University and Faculty
2. Programme Objectives or Programme Educational Objectives
3. Programme Outcomes (POs)
4. Mapping of POs to the 8 MQF domain
5. Summary of the Bloom's Taxonomy's Domain Coverage in all the Los in the format below :

Subject	Learning Outcomes (please state the learning Outcomes)	Bloom's Taxonomy Domain		
		Affective	Cognitive	Psychomotor
TNL3221	LO1 Explain the basic concepts in natural language processing.		2	
	LO2 Solve the problems of natural language processing.		3	
	LO3 Apply the various techniques of natural language processing.		3	
	LO4 Design and develop a natural language processing system.		5	
DEF5678	Learning Outcome 1			
	Learning Outcome 2			
	Learning Outcome 3			
	Learning Outcome 4			

6. Summary of LO to PO measurement
7. Measurement and Tabulation of result for LO achievement
8. Measurement Tabulation of result for PO achievement