TO: The Engineering Faculty

FROM: The Faculty of the School of Electrical Engineering

RE: Change of Course Level for EE 669

The Faculty of the School of Electrical Engineering has approved the following course-level changes for EE 669. This action is now submitted to the Engineering Faculty with a recommendation for approval.

<u>FROM</u>:

EE 669. NATURAL LANGUAGE PROCESSING
Spring alternate years, class 3, credits 3
Prerequisite: EE 570 (IE 547)

This course focuses on keyword-driven question answering systems; transition networks; parsing procedures for context-free grammars; theory of transformational grammars; implementation of recursive transition networks; implementation of augmented transition networks; representation of conceptual dependencies, surface semantic conceptual analysis; conceptual dependency parsing; generating natural language from a conceptual base; scripts, plans and goals; building conversationalist programs.

<u>Outline</u>:

	Lectures
Human Language Comprehension	1
An outline of English grammar	1
Parsing with Context-Free Grammars Introduction	1
Top-down techniques:	
Top-down RTNS	1
Prolog Parser	1
ATNS	
The small ATN program	1
A large ATN program	3
depth-first vs breadth-first	
morphological analysis	
lexicon--what is needed	
grammar hacking	
Bottom-up techniques:	
Bottom-up chart parser	1
Tomita Parser and parse forests	2
Bottom-up vs Top-down and Mixed-mode parsing	1
Adding features to parsers	3
Handling passives	1
Wh-movement	2
Deterministic Parsing	2
Semantics and Logical Form	
What is it	1
Designing a good logical form	2

Semantic Interpretation	
Semantic rules and Compositionality	2
Semantic grammars	
Simple semantic grammars	1
Interleaved Syntactic and Semantic analysis	1
Semantic Preferences and Interleaving	1
Rule-by-Rule Semantics	2
Semantic Ambiguity, how to deal with it	2
Knowledge Representation	3
Discourse Structure	2
Spoken Natural Language	3
How can NLP help	
Text-based vs. spoken	
Constraint Dependency Grammars	
In class proposals and presentation of Course Project	3
In class test	1

TO:

EE 575. NATURAL LANGUAGE PROCESSING
Sem. 1 (alternate years), class 3, credits 3
Prerequisites: EE 373 or graduate standing. Knowledge of LISP

      This course will introduce students to the linguistic concepts needed to effectively build natural language systems. Focus will be on parsing techniques (students will modify several different types of parsers), logical form, semantic analysis, knowledge representation, discourse analysis techniques, and the impact of natural language systems on speech systems.

Outline:

	Lectures
Human Language Comprehension	1
An outline of English grammar	2
Grammar Theory	2
Lexicon	1
Top-down parsing techniques:	6
Top-down RTNS (1)	
Prolog Parser (1)	
ATNS (4)	
The small ATN program (1)	
A large ATN program (3)	
depth-first vs breadth-first	
morphological analysis	
lexicon--what is needed?	
writing good grammars	
Bottom-up parsing techniques:	4
Bottom-up chart parser (1)	
Tomita Parser and parse forests (3)	
Mixed-mode parsing (1)	
Adding features to parsers	3
Handling passives (1)	
Wh-movement (2)	
Deterministic Parsing	1

Semantics and Logical Form	3
What is it? (1)	
Designing a good logical form (2)	
Semantic Interpretation	9
Semantic rules and Compositionality (2)	
Semantic grammars (2)	
Simple semantic grammars (1)	
Interleaved Syntax and Semantics (1)	
Semantic Preferences and Interleaving (1)	
Rule-by-Rule Semantics (2)	
How to deal with Semantic Ambiguity (2)	
Knowledge Representation	3
Discourse Structure	3
Spoken Natural Languages	3
How can NLP help	
Text-based vs. spoken	
Constraint Dependency Grammars	
Proposals and presentations of Course Project	3
Test	1

REASON: As this topic area has matured, the subject matter supporting this course has moved into the undergraduate program. Thus, a move to the 500-level with minor outline and course description changes is appropriate.

Richard J. Schwartz
Professor and Head