

## Liverpool John Moores University

Title: DECISION SUPPORT SYSTEMS AND FUZZY LOGIC  
Status: Definitive  
Code: **6022TECH** (105438)  
Version Start Date: 01-08-2016

Owning School/Faculty: Electronics and Electrical Engineering  
Teaching School/Faculty: Electronics and Electrical Engineering

Team	Leader
Karl Jones	Y

**Academic Level:** FHEQ6      **Credit Value:** 12      **Total Delivered Hours:** 24  
**Total Learning Hours:** 120      **Private Study:** 96

### Delivery Options

Course typically offered: Semester 1

Component	Contact Hours
Lecture	18
Practical	6

**Grading Basis:** 40 %

### Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Essay	AS1	Assessment 1: Written work	30	
Essay	AS2	Assessment 2: Development of a DSS	40	
Essay	AS3	Assessment 3: Development of a FL System	30	

### Aims

*To appreciate the applicability of Decision Support Systems (DSS) and knowledge based systems to commercial problems and to gain experience in building a small scale DSS.*

*To highlight the concepts of Fuzzy Logic and create a Fuzzy Logic System.*

## Learning Outcomes

After completing the module the student should be able to:

- 1 Appreciate the role of Decision Support Systems in a commercial setting
- 2 Perform knowledge acquisition, elicitation and representation
- 3 Create a small scale Decision Support System
- 4 Comprehend the fundamentals of Fuzzy Logic
- 5 Develop a Fuzzy Logic System

## Learning Outcomes of Assessments

The assessment item list is assessed via the learning outcomes listed:

CW	1	
CW	2	3
CW	4	5

## Outline Syllabus

*Intelligent knowledge based systems:*

*introduction to Knowledge Based Systems and Decision Support Systems*

*methods of knowledge representation*

*production rules, frames, logic, semantic networks, predicate logic*

*methods of knowledge acquisition, knowledge elicitation*

*KBS functions: rule based systems, inference engines, chaining*

*Fuzzy logic:*

*fuzzy fundamentals, fuzzy calculus, fuzzy mathematics*

*fuzzification and defuzzification*

*inference methods*

*membership functions*

## Learning Activities

Lectures supported by handouts & tutorials where appropriate.

Practical sessions will use software packages for knowledge base development.

An individual student report is required for the coursework.

## Notes

This module provides a basic introduction into artificial intelligence, allowing an application-specific Decision Support Systems program and a Fuzzy Logic System to be created.

