

IE 469 Lab Assignments

Weeks	Labs	Tools	Lab Objective	Assignments
1	CIM databases I	MS VB & Access	Basic concepts for designing relational databases for a manufacturing set up.	<ol style="list-style-type: none"> 1. Design of Data Base For FMS Tool Management 2. Creation of Tables 3. Design of Data Forms 4. Data Entry 5. Establishment of Relationship between Data Tables
2	CIM databases II	MS VB & Access	Fundamental concepts for designing manufacturing databases queries.	<ol style="list-style-type: none"> 1. General Query Design For FMS Tool Management 2. Simple Query Design For a particular Tool 3. Query Design For any Tool 4. Complex Query Design Tools in Cells 5. Design For a compound Query To search multiple Tools 6. Interface MS Access based Tool Management System With VB ADO Data Controls
3	CIM databases III	MS VB & Access	Development of DataBase for medium level CIM organizations and integration of information between CIM components.	<ol style="list-style-type: none"> 1. Design of Data Base For CIM Manufacturing Cell 2. Creation of Tables 3. design of Data Forms 4. Data Entry 5. Establishment of Relationship between Tables 6. Query Design For Information Processing & Retrieval
4	IDEF0	BPwin	Methodology of IDEF0 Data modeling in manufacturing organizations.	<ol style="list-style-type: none"> 1. Introduction To BPWin (An IDEF0 Modeling Tool) 2. ICOM modeling of Small Manufacturing Cell using BPWin 3. Development of Decomposition Diagrams

5	IDEF0	BPwin	Methodology of IDEF0 Data modeling extended to include CIM design, planning, implementation and follow up.	<ol style="list-style-type: none"> 1. CIM Planning using IDEF0 2. Application of BPWin to draw context and decomposition diagrams for CIM design, planning and follow up.
6	IDEF1X	Design/IDEF	Illustration of developing abstract data planning and control models using IDEF1X concepts for manufacturing systems	<ol style="list-style-type: none"> 1. Working With Design/IDEF software (An IDEF1X modeling tool). 2. Development of IDEF1X model using Design/IDEF for a small production set engaged in the production of parts.
7	IDEF1X	Design/IDEF	Extension of the basic concepts to be applied in large scale CIM based systems using Design/IDEF Tool.	<ol style="list-style-type: none"> 1. Development of complex IDEF1X model using Design/IDEF for the production of a part. 2. Development of complex IDEF1X model using Design/IDEF for report generation of a production system. 3. Development of complex IDEF1X model using Design/IDEF for shop floor system
8	Petri Nets	VObject2	Basic Concepts of Petri-Net Modeling	<ol style="list-style-type: none"> 1. Working with VObject2 software (A Petri Net Modeling Tool) 2. Development of Petri Net Model For Machine Failures in a Manufacturing Cell 3. Simulation of PN model for testing and validation.
9	Petri Nets	VObject2	Time Based Petri-Net Modeling	<ol style="list-style-type: none"> 1. Construction and Simulation of deterministic timed-Petri Net Model for Machine Failures. 2. Construction and Simulation of Stochastic Timed- Petri Net Model for Machine Failures.
10	Petri Nets	HPSim	Stochastic Petri-Net Modeling	<ol style="list-style-type: none"> 1. Construction and Simulation of stochastic timed-Petri Net Model for a Robotic Cell. 2. Construction and Simulation of Stochastic Timed- Petri Net Model for Machine Cell with multiple buffers & Robots.

11	KBS	Exsys	Development of Rule-Based Decision System using EXSYS	<ol style="list-style-type: none"> 1. Basic knowledge about development of an Expert System using EXSYS 2. An Expert System development for light bulb replacement using EXSYS
12	KBS	Exsys	Extension of the Basic concepts used to enhance students capability to design and develop medium sized Expert Systems	<ol style="list-style-type: none"> 1. Enhancement of Expert System developed in Lab 11 2. Testing, validation and Debugging of the Expert System.
	KBS	Exsys	Development of an expert system model for CIM.	<ol style="list-style-type: none"> 1. Formulation of “CIM Implementation” Problem 2. Construction of Expert System for “CIM Implementation Feasibility” using EXSYS. 3. Testing and Debugging of the Model