ARTIFICIAL INTELLIGENCE IN MANUFACTURING

Subject Code: 13ME2103

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Course Outcomes :

At the end of the course, the student will be able to

CO1: Explain importance of artificial intelligence techniques used in expert system software

CO2: Estimate the difference between forward and backward chaining inference strategies

CO3: Identify the linking of expert systems to other software such as DBMS, MIS, MDB

CO4: Explain the difference between fault diagnosis and failure analysis

CO5: Solve the case studies of typical applications in solving manufacturing problems like process selection, tool selection etc.

UNIT-I

Artificial intelligence - definition - components - scope - application areas; knowledge - based systems (expert systems) - definition - justification - structure – characterization**.**

UNIT-II

Knowledge sources - expert - knowledge acquisition - knowledge representation - knowledge base - interference strategies - forward and backward chaining.

UNIT-III

Expert system languages - ES building tools or shells; typical examples of shells. expert system software for manufacturing applications in CAD, CAPP, MRP , adaptive control.

UNIT-IV

Robotics, process control, fault diagnosis, failure analysis; process selection, GT etc. linking expert systems to other software such as DBMS, MIS, MDB.

UNIT-V

Process control and office automation. case studies of typical applications in tool selection, process selection, part classification, inventory control, process planning.

TEXT BOOK:

1. Russell, "Artificial Intelligence: A Modern Approach", 2/E, Pearson Education Inc., 2009.

REFERENCES:

1. M. Tim Jones, "*Artificial Intelligence: A Systems Approach*", Jones and Bartlett Publishers, Canada, 2009.

2. Deb. S.R., "*Robotics Technology and Flexible automation*", Tata McGraw-Hill, 1994.