| 10 | 0/19/2022 DATE | | Technology | DIVISION |
|----------|-----------------|-------------------|------------|------------|
| ✓ | REQUIRED COURSE | | | NEW COURSE |
| ✓ | ELECTIVE COURSE | | | REVISION |
| | | Lake Land College | | |

| | | | | Course Information Fo | orm | | | | | | | |
|--------------------------------------|-------|--|-------------|---|--------|-----------|--------|-----------|----------------|------------------|---------------|-----|
| COURSE NUMBER: | | CIM-044 | | TITLE: (30 Characters I | Max) | | Indust | rial Robo | otics | | | |
| SEM CR HRS: | 2 | Lecture: | | 2 | | | Lab: | 0 | | | ECH: | 2 |
| Course Level: | | Gen Ed / IAI Baccalaureate /Non-IAI | | er/Technical Ed/ Not in Degree Audit | Clinic | al Practi | cum: | 0 | SC Internsh | | SOE ECH: | 0 |
| COURSE PCS # | | 12.150405 | | IAI Code | | | | | | Contact Hours (N | inutes Per We | ek) |
| Repeatable (Y/N): | Υ | Pass/Fail (Y/N): | N | N Variable Credit (Y/N): | Ν | Min: | | Max: | 16 W | ks 100 | 8 wks | 200 |
| Prerequisites: | | | | | | | | | | | | |
| Catalog Description: (40 W Limit) | ord (| | ors, safety | robotics used in computer integrand justification of robotic syst | | | | | | | | |

| | List the Major Course Segments (Units) | | Contact Lecture Hours | Contact Lab Hours | Clinical Practicum | Non-Clinical Internship/ SOE |
|--------------------------|--|-------|-----------------------------|----------------------|--------------------|---------------------------------|
| Introduction to Robotics | | | 3 | | | |
| History of Robotics | | | 2 | | | |
| Justifying Robot Systems | | | 3 | | | |
| Basic Systems | | | 3 | | | |
| Robot Classification | | | 3 | | | |
| Robot Specifications | | | 3 | | | |
| Work Cell Sensors | | | 3 | | | |
| End of Arm Tooling | | | 3 | | | |
| Robot Programming | | | 4 | | | |
| Industrial Uses | | | 3 | | | |
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| | | TOTAL | 30 | 0 | 0 | 0 |

| | EVALUATION | | | | | | |
|---------------------|-----------------------------------|-----------------|------------|--------|--|--|--|
| QUIZZES 🗹 | EXAMS 🗹 | | ORAL PRES | PAPERS | | | |
| LAB WORK | PROJECTS ✓ | | COMP FINAL | OTHER | | | |
| | | | • | | | | |
| | | COURSE MATERIAL | S | | | | |
| | Introduction to Robotics in CIM S | Systems | | | | | |
| AUTHOR: | James A. Rehq | | | | | | |
| PUBLISHER: | Prentice-Hall | | | | | | |
| VOLUME/EDITION/URL: | | | | | | | |
| COPYRIGHT DATE: | 2003 | | | | | | |

| MAJOR COURSE SEGMENT | HOURS | LEARNING OUTCOMES |
|--------------------------|-------|---|
| | | The student will be able to: |
| Introduction to Robotics | 3 | Describe how robots are integrated into the manufacturing system. |
| History of Robotics | 2 | Discuss the invention and evolution of robots. |
| Justifying Robot Systems | 3 | Calculate the return on investment and payback period of a robot system. |
| Basic Systems | 3 | Describe the components of a robotic system and know the function of each one in the machine's operation. |
| Robot Classification | 3 | Divide all industrial robots into groups that identify and describe their unique characteristics. |

| Robot Specifications | | Complete an internet search to find and compare specifications of various industrial robots. |
|----------------------|----|---|
| Work Cell Sensors | 3 | Describe the various sensors used in a robot work cell. |
| End of Arm Tooling | | Explain the similarities and difficulties of constructing "end of arm tooling" which can duplicate the actions of a human worker. |
| Robot Programming | 4 | Discuss the various methods used in programming a robot. |
| Industrial Uses | 3 | Discuss how robotics are actually used in various industries. |
| | 30 | |

| COURSE OUTCOMES* | At the successful completion of this course, students will be able to: | |
|---|--|--|
| • Identify the main configurations of robot arm geome | etry. | |
| • Summarize the two main methods of robot path cor | ntrol. | |
| Program a point-to-point industrial robot. | | |
| • Select the proper end of arm tooling for a particular | robot system. | |
| • Interpret robot manufacturer's specification sheets. | | |

 $[\]mbox{\ensuremath{^\star}}$ Course Outcomes will be used in the Assessment Software for Outcomes Assessment. Limit to 3 - 5.