

FLORIDA STATE COLLEGE AT JACKSONVILLE

COLLEGE CREDIT COURSE OUTLINE

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| COURSE NUMBER: | ETI 2622 |
| COURSE TITLE: | Introduction to Lean Manufacturing |
| PREREQUISITE(S): | EST 1352 |
| COREQUISITE(S): | None |
| CREDIT HOURS: | 3 |
| CONTACT HOURS/WEEK: | 4 |
| CONTACT HOUR BREAKDOWN: | |
| Lecture/Discussion: | 3 |
| Laboratory: | 1 |
| Other _____: | |
| FACULTY WORKLOAD POINTS: | 3.67 |
| STANDARDIZED CLASS SIZE ALLOCATION: | 24 |
| CATALOG COURSE DESCRIPTION: | |
| | This course is designed to provide students with a resource that describes the techniques and procedures of motion and time study. The students will be exposed to the mathematics required for developing the formulas needed for the study of motion and from these the overall concepts of Lean Manufacturing. Motion study must be accomplished before time standards are set thus allowing the technician to design a work station that fits the fabrication, assembly, and packaging operations using the study as a guide to improve the product output while minimizing waste. |
| SUGGESTED TEXT(S): | <u>Motion and Time Study for Lean Manufacturing</u> By: Fred E. Meyers and James R. Stewart Latest edition, Publisher: Prentice Hall |
| IMPLEMENTATION DATE: | Fall Term, 2006 (20071) |
| REVIEW OR MODIFICATION DATE: | Fall Term, 2009 (20101) - Proposal 2009-11 |

| COURSE TOPICS | <u>CONTACT HOURS PER TOPIC</u> |
|--|------------------------------------|
| I. Introduction to Motion and Time Study | 4 |
| II. Motion and Time Study for Lean Manufacturing | 4 |
| III. History of Motion and Time Study | 3 |
| IV. The Importance and Uses of Motion and Time Study | 4 |
| V. Techniques of Methods Design: The Product Flow Marco-motion | 4 |
| VI. Techniques of Micro-motion Study: Operations Analysis | 4 |
| VII. Motion Study: The Work Station Design | 4 |
| VIII. Predetermined Time Standards (PTS) Systems | 4 |
| IX. Stopwatch Time Study | 3 |
| X. Standard Data and Its Uses in Balancing Work | 3 |
| XI. Work Sampling | 3 |
| XII. Indirect Labor and Motion and Time Study | 4 |
| XIII. Performance Control Systems | 4 |
| XIV. Wage Payment Systems | 4 |
| XV. Time Management Techniques | 4 |
| XVI. Attitudes and Goals for Industrial Engineers | 4 |

PROGRAM TITLE: Engineering Technology
Specialization Tract Advanced Manufacturing

COURSE TITLE: Introduction to Lean Manufacturing

CIP NUMBER: 1615.061300 AS

LIST PERFORMANCE STANDARDS ADDRESSED:

NUMBER(S): TITLE(S):

05.0 DEMONSTRATE PROFICIENCY IN USE OF QUALITY ASSURANCE METHODS, QUALITY CONTROL CONCEPTS - The student will be able to:

- 05.04 Compare process measurements to standards.
- 05.05 Identify root causes using standard techniques.
- 05.06 Identify Corrective Action and Preventive Action.
- 05.07 Describe the concept of quality assurance in increasing productivity and promoting zero defects.
- 05.08 Apply data collection methods for productivity improvement and reporting.
- 05.09 Analyze data using tools and techniques for productivity and quality problems.
- 05.10 Analyze data using tools and techniques for cause and effect relationships.
- 05.11 Develop and apply quality improvement strategies.
- 05.12 Demonstrate an understanding of a quality process's capability and its applications.
- 05.13 Demonstrate knowledge of how to implement quality assurance principles and methods.
- 05.14 Demonstrate knowledge of quality assurance checks for inspections.
- 05.15 Demonstrate an understanding of internal and external supply chains.
- 05.16 Demonstrate understanding of the configuration of management.
- 05.17 Demonstrate knowledge of standard industry practices regarding inventory control methods and procedures.
- 05.18 Demonstrate knowledge of production floor plan and safety requirements to place materials in most efficient and safe location and position.
- 05.19 Demonstrate knowledge of storage space available to establish lot sizes and reorder points.
- 05.20 Demonstrate knowledge of proper forecasts and methods for conducting inventory audits to recognize and report inventory discrepancies.
- 05.21 Identify significant inventory discrepancies.
- 05.22 Use cycle count process to ensure accurate counts are taken.
- 05.23 Demonstrate knowledge of trade-off techniques (e.g., balance lead time and cycle time issues with inventory)



**Florida State College
At Jacksonville**

**Course Learning Outcomes & Assessment
For All College Credit Courses**

NOTE: Use either the Tab key or mouse click to move from field to field. The box will expand to accommodate your entry.

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| Section 1 | | |
| COURSE PREFIX AND NUMBER: ETI 2622 | | SEMESTER CREDIT HOURS: 3 |
| COURSE TITLE: <u>Introduction to Lean Manufacturing</u> | | |
| Section 2 | | |
| TYPE OF COURSE: (Click on the box to check all that apply) | | |
| <input type="checkbox"/> AA Elective | <input checked="" type="checkbox"/> AS Required Professional Course | <input type="checkbox"/> College Prep |
| <input type="checkbox"/> AS Professional Elective | <input type="checkbox"/> AAS Required Professional Course | <input type="checkbox"/> Technical Certificate |
| <input type="checkbox"/> Other _____ | <input type="checkbox"/> General Education: (For General Education courses, you must also complete Section 3 and Section 7) | |
| Section 3 (If applicable) | | |
| INDICATE BELOW THE DISCIPLINE AREA FOR GENERAL EDUCATION COURSES: | | |
| <input type="checkbox"/> Communications | <input type="checkbox"/> Social & Behavioral Sciences | <input type="checkbox"/> Mathematics |
| <input type="checkbox"/> Natural Sciences | <input type="checkbox"/> Humanities | |
| Section 4 | | |
| INTELLECTUAL COMPETENCIES: | | |
| <input checked="" type="checkbox"/> Reading | <input checked="" type="checkbox"/> Speaking | <input checked="" type="checkbox"/> Critical Analysis |
| <input checked="" type="checkbox"/> Writing | <input checked="" type="checkbox"/> Listening | <input type="checkbox"/> Information Literacy |
| | | <input checked="" type="checkbox"/> Quantitative Skills |
| | | <input checked="" type="checkbox"/> Ethical Judgment |
| | | <input checked="" type="checkbox"/> Scientific Method of Inquiry |
| | | <input checked="" type="checkbox"/> Working Collaboratively |
| Section 5 | | |
| | LEARNING OUTCOMES | METHOD OF ASSESSMENT |
| • | Compare process measurements to standards. | Hands-on application exercises. Written quizzes, or test. |
| • | Describe the concept of quality assurance in increasing productivity and promoting zero defects. | Hands-on application exercises Written quizzes, or test. |
| • | Apply data collection methods for productivity improvement and reporting. | Hands-on application exercises |
| • | Develop and apply quality improvement strategies. | Lean Theory application exercises |
| • | Demonstrate understanding of the configuration of management. | Written quizzes, or test. |
| • | Demonstrate knowledge of proper forecasts and methods for conducting inventory audits to recognize and report inventory discrepancies. | Lean Theory application exercises. Written quizzes, or test. |
| • | Demonstrate knowledge of trade-off techniques (e.g., balance lead time and cycle time issues with inventory) | Lean Theory application exercises. Written quizzes, or test. |
| • | | |
| Section 6 Name of Person Completing This Form: <u>Evan Kuharich</u> Date: <u>05/7/08</u> | | |