



## Robotic Fundamentals

### RBTC 1305

“Northeast Texas Community College exists to provide responsible, exemplary learning opportunities.”

**Office: ITTC**  
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Office Hours	Monday	Tuesday	Wednesday	Thursday
	12-3 PM	12-3 PM	12-3 PM	12-3 PM

**Course Description:** Introduction to flexible automation. Topic include installation, repair, maintenance, and development of flexible robotic manufacturing systems.

**Prerequisite(s):** None

**Student Learning Outcomes:** Describe the history of robotics and its impact on production and the labor force, define the term “robot” and describe general characteristics: explain the physics of robot motion and use different teaching pendants; and describe the characteristics of different types of robot control systems, applications of robots, and end-of-arm tooling.

**Required Textbook(s):** Online Subscription to Learnamatrol.com sold in 4, 6, and 12 month durations from the Northeast Texas Community College Bookstore.

**Optional Instructional Materials: None**

**Minimum Technology Requirements:** Internet and basic computer skills

**Required Computer Literacy Skills:** Internet, Email, Basic Word documents, and Blackboard.

**Communications:** NTCC email is the official form of communication for the college. Use your NTCC student email when requesting appointments, or need assistance, from your instructor. Emails and phone calls will be returned in a timely manner Monday-Thursday. Friday afternoon thru Sunday calls and emails may not be returned until Monday.

### **Student Responsibilities/Expectations:**

1. Students are expected to demonstrate Safety in all classes and lab activities.
2. Students must complete ITTC Safety Orientation and OSHA Safety Course before starting their Skills assessment. Student must complete the online Safety Course WXSA105-XX00XEN-E1 - Lockout / Tagout Prior to starting Motor Controls Course.
3. Students will be taught in a competency-based, self-paced environment with the instructor and lab assistants serving as learning facilitators.
4. Students will complete both a Quiz covering the objectives contained in the LAPs, and Skills Assessments that demonstrate mastery of the skills taught in the LAPs.
5. In order to be successful, students will complete the courses they enrolled within forty-two academic weeks (42 weeks). After the semester enrolled students who do not complete will be awarded an I (Incomplete) as a grade. After 42 class weeks from the beginning of the semester enrolled and the course is not complete, the I (incomplete) will become a final grade of "F" for the course.
6. Student must complete quizzes on Learnamatrol.com and the skills assignments in Blackboard for the course.
7. Students receiving financial assistance must complete courses during the semester they are enrolled. Failure to complete a course where financial assistance such as FASFA is used can result in losing your financial assistance. If you are on FASFA COMPLETE the course before the end of the semester.
8. We are limited on the number of people that may have appointments to perform hands on skills each day. Complete your quizzes, assignments, and hands on skills in a timely manner. If you are in multiple Industrial Technology courses and receiving FASFA then you will need to plan to complete every course this semester. PLAN ACCORDINGLY!

### **Instructional Methods:**

The primary method of instruction will be a self-paced facilitator model. The instructor will serve as a facilitator for the student's learning; thus, enabling the student to move at his/her own pace. Learning Activity Packets (LAP), multi-media computer-based learning modules, and practical hands-on activities will be incorporated throughout the course. Classroom presentations will be used infrequently at the instructor's discretion. Self-reviews, skill activities, Quiz assessments, (ONLINE) and Skills assessments will be used to evaluate the student's competency.

### **Instructor – Student Relationship:**

**Your instructor** can be your greatest resource. Your instructor is here to assist you in learning the material and helping you earn the grade you wish to earn in the course. **This is a commitment by your instructor.** Please utilize this resource by contacting your instructor with any matter you feel they can assist you with, both within this class or your college success in general. It is your responsibility to learn the material, but this can often be

best accomplished by initiating contact with the instructor on topics you need clarification or further assistance. Please do this!

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903-434-8385

#### **Evaluation and Grading Criteria:**

Self-reviews and skill activities are a regular part of the Learning Activity Packets intended to enable the student to evaluate his/her own progress. Quiz assessments (ONLINE) 40% and Skills 50% of your grade. Course Participation and Safety 10% is earned by displaying safety practices and making weekly progress needed to complete coursework.

Grades of A, B, C, D, and F will be determined by the student's achievement of a certain percentage of possible points based on the below listed categories.

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<b><u>Assignments</u></b>	<b><u>Percentage</u></b>
Online Quiz	40%
Skills Assessment	50%
Course Participation and Safety	10%

The letter grade is based on the following Grading Scale:

89.5%-100% = A

79.5%-89.4% = B

69.5%-79.4% = C

59.5%-69.4% = D

0-59.4% = F

#### **Quizzes and Assignments:**

##### **Students must complete Assignments Quizzes and Hands-on Skills in all of the following:**

- Research paper on History of robotics and its impact on production and Labor Force
- Robot Operations Overview o Teach Pendants o Robot control systems o Applications o End-of-Arm (EOA) Tooling
- Moving a Robot in JOINT mode

- Moving a Robot in WORLD mode
- Teach Pendant
- Create Teach Pendant Programs
- Edit Programs with the Teach Pendant
- Abort Programs
- Methods of Accessing Programs
- Testing and Execution of Programs

### **Withdrawal Procedures:**

Withdrawal requests MUST BE initiated by the student. Requests for withdrawal become official and effective the date they are received in the records office. Students who stop coming to class (that is, stop participating on the class website) but fail to drop the course will *earn* an "F" for the course.

**Alternate Operations During Campus Closure and/or Alternate Course Delivery Requirements** In the event of an emergency or announced campus closure due to a natural disaster or pandemic, it may be necessary for Northeast Texas Community College to move to altered operations. During this time, Northeast Texas Community College may opt to continue delivery of instruction through methods that include, but are not limited to, online through the Blackboard Learning Management System, online conferencing, email messaging, and/or an alternate schedule. It is the responsibility of the student to monitor NTCC's website (<http://www.ntcc.edu/>) for instructions about continuing courses remotely, Blackboard for each class for coursespecific communication, and NTCC email for important general information.

Additionally, there may be instances where a course may not be able to be continued in the same delivery format as it originates (face-to-face, fully online, live remote, or hybrid). Should this be the case, every effort will be made to continue instruction in an alternative delivery format. Students will be informed of any changes of this nature through email messaging and/or the Blackboard course site.

### **NTCC Academic Honesty/Ethics Statement:**

NTCC upholds the highest standards of academic integrity. The college expects all students to engage in their academic pursuits in an honest manner that is beyond reproach using their intellect and resources designated as allowable by the course instructor. Students are responsible for addressing questions about allowable resources with the course instructor. Academic dishonesty such as cheating, plagiarism, and collusion is unacceptable and may result in disciplinary action. This course will follow the NTCC Academic Honesty and Academic Ethics policies stated in the Student Handbook. Refer to the student handbook for more information on these subjects.

### **ADA Statement:**

It is the policy of NTCC to provide reasonable accommodations for qualified individuals who are students with disabilities. This College will adhere to all applicable federal, state, and local laws, regulations, and guidelines with respect to providing reasonable accommodations as required to afford equal educational opportunity. It is the student's responsibility to request accommodations. An appointment can be made with the Academic Advisor/Coordinator of Special Populations located in Student Services and can be reached at 903-434-8264. For more information and to obtain a copy of the Request for Accommodations, please refer to the special populations page on the NTCC website.

### **Family Educational Rights and Privacy Act (FERPA):**

The Family Educational Rights and Privacy Act (FERPA) is a federal law that protects the privacy of student education records. The law applies to all schools that receive funds under an applicable program of the U.S. Department of Education. FERPA gives parents certain rights with respect to their children's educational records. These rights transfer to the student when he or she attends a school beyond the high school level. Students to whom the rights have transferred are considered "eligible students." In essence, a parent has no legal right to obtain information concerning the child's college records without the written consent of the student. In compliance with FERPA, information classified as "directory information" may be released to the general public without the written consent of the student unless the student makes a request in writing. Directory information is defined as: the student's name, permanent address and/or local address, telephone listing, dates of attendance, most recent previous education institution attended, other information including major, field of study, degrees, awards received, and participation in officially recognized activities/sports.