

## Outcomes Based Learning Matrix

Course: ENGT 274 Dynamics

Department: ENGT

Course Outcomes	Outcome Activities	Assessment Tools
<b>Students will be able to:</b>		
Evaluate problems concerning the kinematics of particles in rectilinear and curvilinear motion.  (WC, QL, IL, CCT, Int L)	Lecture and discussion of the principles of angular and linear momentum.	Students comprehension of these topics will be assessed in homework and exams.
Demonstrate an understanding of the kinetics of particles.  (WC, QL, IL, CCT, Int L)	Study Newton's Conservation of Energy principle as it applies to single particle and many particle mechanics using energy and momentum analysis in addition to Newton's Second Law.	Students comprehension of these topics will be assessed in homework and exams
Solve kinematics problems involving rigid bodies.  (WC, QL, IL, CCT, Int L)	Lectures on the kinetics of rigid bodies as well as the potential energy associated with gravity and spring forces.	Students comprehension of these topics will be assessed in homework and exams
Analyze the plane motion of rigid bodies using forces & accelerations and energy & momentum methods.  (WC, QL, IL, CCT, Int L)	Lecture and discussions of the motion of rigid bodies reviewing Kinematics, Inertia tension, Euler's Equations and their applications.	Students comprehension of these topics will be assessed in homework and exams
Illustrate an understanding of the elements of the LaGrange approach  (WC, QL, IL, CCT, Int L)	Lectures and class discussions on developing dynamical equations using the LaGrangian approach. Also learn the concept of the Principle of Least Action.	Students comprehension of these topics will be assessed in homework and exams.
Analyze dynamic forces in systems using Matlab  (WC, QL, IL, CCT, Int L)	Use Matlab in assignments and class examples to analyze complex, multi-force system analysis.	Matlab will be used in an extended lecture/lab environment.

