The University of Texas at Tyler
Department of Electrical Engineering

EENG 4105 – Undergraduate Research Seminar

Syllabus

Catalog Description:

The purpose of this course is to prepare students for engineering research: literature survey, generation of hypothesis, experiment design, research methodology, analysis and interpretation of data using a set of published scientific research papers.

Prerequisites:	

Credits:	(	1	hour meeting,	0	hours laboratory per week)

Text(s):	No specific textbook is required. Students will do their own literature survey, design experiments, analyze data, and discuss with Dr. Tabassum during class time.

Additional Material:	Engineering paper, scientific calculator, MATLAB, and Excel
Course Coordinator:	Shawana Tabassum

Topics Covered: (paragraph of topics separated by semicolons)

Topics emphasize the literature survey, generation of hypothesis, experiment design, research methodology, analysis and interpretation of data using a set of published scientific research papers.

Evaluation Methods: (only items in dark print apply):

1. Examinations / Quizzes
2. Homework
3. Report
4. Computer Programming
5. Project
6. Presentation
7. Course Participation
8. Peer Review

Course Objectives[2]: By the end of this course students will be able to:

1. Develop literature research skills, creative thinking, presentation and report-writing skills through a survey of the most recent biosensing platforms (e.g. Covid-19). [3,5,6]
2. Design and develop sensors with application ranging from healthcare to environmental monitoring. [3,5,6]

[2]*Numbers in brackets refer to method(s) used to evaluate the course objective.*

Relationship to Program Outcomes (only items in dark print apply)[3]: This course supports the following Electrical Engineering Program Outcomes, which state that our students will:

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics [1,2];
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors [1,2];
3. an ability to communicate effectively with a range of audiences
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives [1]
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions [1,2];
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

[3] *Numbers in brackets refer to course objective(s) that address the Program Outcome.*

Prepared By:	Shawana Tabassum	Date:	9 January 2024