WEX 428 – Workplace Experience III

Course Code	Course Name	Semester	
WEX 428	Workplace Experience III	Fall ☐ Spring ☒ Summer ☐	
Hours		**Credit**	**ECTS**
Theory	**Practice**	**Lab**	
0	30	0	15 / 22

Course Details	
Department	COMPUTER ENGINEERING
Course Language	English
Course Level	Undergraduate ☒ Graduate ☐
Mode of Delivery	Face to Face ☒ Online ☐ Hybrid ☐
Course Type	Compulsory ☒ Elective ☐
Lecturer (s)	Departmental Academic Advisor & Workplace Mentor
Course Objectives	The primary objective of this capstone course is to facilitate the student's transition from an academic environment to a professional engineering role. Students will integrate and synthesize advanced theoretical knowledge with complex, real-world applications by taking substantial ownership of a significant engineering project. The aims are to: master the ability to manage a project from conception to completion; develop innovative solutions to complex, open-ended engineering problems; operate with a high degree of autonomy and professional responsibility; and demonstrate leadership, advanced communication, and teamwork skills within a corporate structure. This experience is designed to solidify professional identity and prepare students for immediate and impactful entry into the engineering workforce.
Course Content	This course requires students to work full-time (or near full-time) at a partner company for the duration of the semester. The content is centered around a major, semester-long engineering project defined in collaboration with the workplace mentor. The student will be responsible for the entire project lifecycle, including requirements analysis, project planning, research, design and development, testing, and validation. Key activities include conducting in-depth technical analysis, utilizing advanced engineering software and equipment, managing project timelines and resources, preparing detailed technical documentation and progress reports, and delivering a final comprehensive report and formal presentation to both company management and university faculty.
Course Method/ Techniques	Lecture ☐ Question & Answer ☐ Presentation ☐ Discussion ☐

Prerequisites/ Corequisites	Must be a 4th-year student and have successfully completed WEX 328 (Workplace Experience II) and all other preceding workplace education courses.
Work Placement(s)	The placement is a full-time engagement for 16 weeks throughout the semester, requiring a minimum of 40 hours per week at the partner company.

Textbook/References/Materials

Workplace Education Guideline

Company-Specific Project Documentation and Briefs

Relevant Industry Standards, Codes, and Regulations (e.g., ISO, ASME)

Technical Manuals for Software and Equipment

Project Management and Collaboration Tools (e.g., Jira, MS Project)

Course Category

Mathematics and Basic Sciences	☐		Education	☐
Engineering	☒		Science	☐
Engineering Design	☒		Health	☐
Social Sciences	☐		Profession	☒

Weekly Schedule

No	Topics	Materials/Notes
1	Company/Project Immersion, Finalizing Project Scope & Objectives, Detailed Project Plan Development	Project Charter, Gantt Chart
2	Requirements Gathering, Stakeholder Meetings, and Initial Feasibility Analysis	Requirements Document, Meeting Minutes
3	In-depth Literature and Technology Review, Conceptual Design and Brainstorming	Technical Review Document, Concept Sketches
4	System-Level Design, Component Selection, and Preliminary Analysis/Simulation	System Architecture, Bill of Materials (BOM)
5	Detailed Design of Key Components and Sub-systems	Detailed CAD Models, Simulation Reports
6	Mid-Project Progress Review with Mentor and Advisor, Design Refinement	Mid-Term Progress Report
7	Prototyping, Manufacturing, or Implementation Phase I	Manufacturing Drawings, Initial Prototype
8	Prototyping, Manufacturing, or Implementation Phase II	Functional Prototype, Assembly Records

9	Development of Test Plans and Experimental Setup	Test Procedure Document
10	Development of Test Plans and Experimental Setup	Test Procedure Document
11	Development of Test Plans and Experimental Setup	Test Procedure Document
12	Execution of Initial Tests, Data Collection, and Performance Analysis	Raw Test Data, Initial Analysis Report
13	Troubleshooting, System Optimization, and Re-testing based on initial findings	Change Log, Final Test Report
14	Validation of Project against Initial Requirements and Objectives	Validation Matrix, Performance Metrics
15	Documentation of Final Design, Results, and Project Outcomes	Final Design Documentation
16	Preparation of Comprehensive Final Project Report	Final Report Draft

Assessment Methods and Criteria		
In-term studies	**Quantity**	**Percentage**
Attendance	16	10
Lab	-	-
Practice	-	-
Fieldwork	-	-
Course-specific internship	-	-
Quiz/Studio/Criticize	-	-
Homework	-	-
Presentation / Seminar	1	70
Project	-	-
Report	16	20
Seminar	-	-
Midterm Exam	-	-
Final Exam	-	-
	Total	**100%**
Contribution of Midterm Studies to Success Grade	1	40
Contribution of End of Semester Studies to Success Grade	1	60
	Total	**100%**

ECTS Allocated Based on Student Workload			
Activities	**Quantity**	**Duration (Hrs)**	**Total Workload**
Course Hours	-	-	-
Lab	-	-	-
Practice	-	-	-
Fieldwork	-	-	-

Course-specific Work Placement	16	30	480
Out-of-class study time	-	-	-
Quiz/Studio/Criticize	-	-	-
Homework	-	-	-
Presentation / Seminar	1	16	16
Project	-	-	-
Report	16	4	64
Midterm Exam and Preparation for Midterm	-	-	-
Final Exam and Preparation for Final Exam	-	-	-
Total Workload			**560**
Total Workload / 25			**22.4**
ECTS Credit			**22**

Course Learning Outcomes	
No	**Outcome**
L1	Integrates advanced engineering principles and synthesizes complex information to manage and execute a significant, industry-relevant project from conception to completion.
L2	Designs and develops innovative and robust solutions to open-ended engineering problems, demonstrating creativity, critical analysis, and adherence to technical and business constraints.
L3	Masters the use of advanced engineering tools, software, simulation packages, and experimental methods to analyze, design, and validate complex systems.
L4	Leads and collaborates effectively within a professional engineering team, managing responsibilities, navigating corporate dynamics, and communicating technical concepts clearly to diverse stakeholders.
L5	Produces comprehensive, professional-grade technical documentation (reports, drawings, manuals) and delivers persuasive oral presentations that defend project outcomes.
L6	Evaluates engineering solutions in the context of professional ethics, public health and safety, sustainability, and commercial viability, demonstrating a holistic professional judgment.

Contribution of Course Learning Outcomes to Program Competencies/Outcomes

Contribution Level: 1: Very Slight, 2: Slight, 3: Moderate, 4: Significant, 5: Very Significant

	P1	**P2**	**P3**	**P4**	**P5**	**P6**	**P7**	**P8**	**P9**	**P10**	**P11**					**Total**
L1	5	5	5	5	4	5	4	4	5	5	4					51
L2	5	5	5	4	5	4	5	5	4	4	4					50
L3	5	4	5	5	5	3	5	5	4	4	3					48
L4	4	4	4	5	5	5	4	5	5	5	5					51
L5	4	4	4	4	4	5	4	4	5	5	5					48
L6	5	5	5	5	5	5	5	5	5	5	5					55
															Total	303

i. The ability to synthesize and integrate advanced theoretical and applied engineering knowledge to solve complex, multi-faceted problems in a professional workplace.

ii. The ability to independently identify, formulate, research, and provide innovative solutions to engineering challenges, managing projects with consideration for real-world constraints such as cost, time, and quality.

iii. The ability to demonstrate leadership, autonomy, and professional accountability by managing a significant engineering project from its inception to final delivery, including planning, execution, and reporting.

iv. The ability to strategically select, master, and apply state-of-the-art engineering tools, software, technologies, and analytical methods to design, develop, and validate engineering solutions.

v. The ability to critically analyze workplace processes and project outcomes, providing and receiving constructive feedback to drive continuous improvement for both personal performance and team objectives.

vi. The ability to function as a leader and a productive member of multidisciplinary teams, effectively managing tasks, resolving conflicts, and collaborating to achieve organizational goals.

vii. The ability to communicate complex technical information with mastery and confidence, both in writing (comprehensive reports, technical specifications) and orally (formal presentations, stakeholder meetings).

viii. The ability to demonstrate a commitment to lifelong learning by proactively identifying knowledge gaps, independently acquiring new skills, and adapting to new technologies and industry paradigms.

ix. The ability to internalize and exemplify the highest standards of professional ethics, corporate responsibility, and integrity in all professional conduct.

x. The ability to design and manage engineering projects with a deep understanding of business practices, including quality assurance, risk management, and market needs, contributing directly to an organization's value.

xi. The ability to critically assess the broader impact of engineering solutions on health, safety, the environment, and society, and to design systems that are sustainable and socially responsible.