



### **ABSTRACT:**

Team 5 in the capstone course of University XXX's Department of Civil and Architectural Engineering Master's program, proposes their architectural and engineering expertise to design a three story, 140,000 square foot laboratory and research facility for their client, Oakland University. This all-inclusive design project comprising of architectural design, structural, mechanical, and electrical engineering, and construction engineering and project management.

Oakland University is located in the City of Rochester of Oakland County, Michigan on 1,443 acres campus 30 miles from Detroit, Michigan. The University developed a Master Plan in 2016 which defines strategic vision, goals, space needs and requirements, guidelines, sustainability, utilities and parking for its 20,000 enrolled student body. Oakland University is ranked the best university to attend in Oakland, Macomb and Wayne counties. Through the understanding and analysis of the Oakland University Master Plan of 2016 stating the desire to expand their research and development programs, Team 5 worked closely with understanding the direction of the Universities future. This project proposes to nearly double the current research floor area currently constructed on campus in preparation for future interdisciplinary research partnerships.

The proposed Interdisciplinary Research Center establishes a compelling physical presence upon entering the University campus. The project design was heavily governed by LEED standards in the attempt to effectively achieve LEED Platinum. The services included in this proposal shall be in conjunction to the current Oakland University Master Plan. The building location, design, functionality and integration to the Oakland University campus will be upheld to the highest standards of the University, Team 5, University XXX, Local and State governed codes, and sustainability standards and guidelines. The estimated construction project cost is approximately \$40 million.

Students of the capstone design teams produced their projects under the supervision and advisement of University XXX's faculty as well as actual licensed design professionals such as architects and engineers. An approximate total of forty (40) professionals have involved themselves into the capstone program assisting all design teams in their projects with constructive criticism, advice, and resources to further develop and push the boundaries of thought processes and ideas to complete their capstone projects to the best of their abilities. The course had spanned two semesters with various presentations, reports, meetings, and drawing submittals that challenged all students to produce honorable academic work while earning valuable real-life knowledge and background.