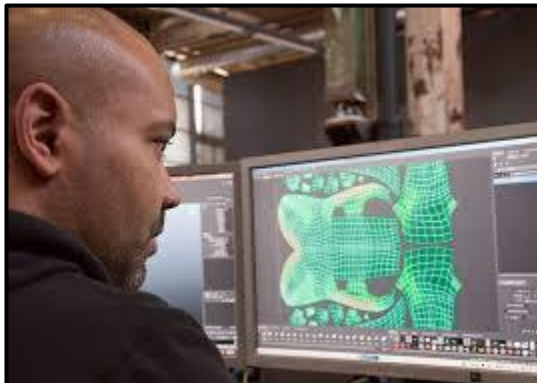# UNIVERSITY PROGRAMS
Lakeland Regional High School

Engineering &

Design Technology

The **UPAL** programs at Lakeland are a specially designed set of curricula for highly-motivated students that seek academic challenges, a specific focus of study and a dedicated faculty that engage students with not only enlightenment, but also real-world relevance.

Common Themes

The **UPAL** curricula are devised around a set of common themes, which are:

- ❑ Collaboration
- ❑ Problem-solving
- ❑ Critical-thinking
- ❑ Research
- ❑ Technology

These themes represent the hallmarks of a modern, 21st. century education preparing students not just for college, but for life beyond college. With teachers using creative and innovative approaches to lessons, students will be engaged in their studies, analyze the information from multiple perspectives, and be capable of developing solutions to real-world problems.

UPAL Engineering & Technology

The aims of Lakeland's **UPAL** Engineering & Technology Program are to encourage students to think creatively, to expose them to the design process and to engage with the deign process using state-of-the-art technology. During these processes students will be exposed to the ever-changing aspects of technology and interact with professionals in the field to gain insight into future developments in society due to technology. By engaging in these activities students can learn how ideas and innovations can be brought to fruition for the goal of improving society. Throughout this program design projects and career explorations play an integral role in the development of the student. A Senior Internship is strongly recommended with this program.

Grade 9
English 9
Physical Education/Health
Math- Geometry
Conceptual Physics 1 Honors
World Language
World History
Lunch/ Study Hall
*Robotics 1
**SCRATCH or elective

sequences: *engineering or **programming

Grade 10
English 10
Physical Education/Health
Math- Algebra 2
Biology Honors
World Language
U.S. History 1
Lunch/ Study Hall
*Robotics 2–4 OR Engineering Research OR Draft.& Design Tech. 1,
**JAVA, Comp. Sci. C++, or elective

Grade 11
English 11
Physical Education/Health
Math- PreCalculus
Chemistry H or Physics 2 Honors
World Language or elective or **Personal Financial Literacy**
U.S. History 2
Lunch/ Study Hall
*Robotics 2–4 OR Engineering Research OR Technical Eng. Design 1
**Electronics or Arduino or elective

Grade 12
English 12
Physical Education/Health
Math- Calculus
4th yr. Science
Engineering elective or Computer Science
World Language or elective
Personal Financial Literacy or elective
Lunch/ Study Hall
*Engineering Internship

Engineering courses: Drafting & Design Tech. 1 & 2, Electronics 1 & 2, Architectural Design, Robotics 1 – 4, Technical Engineering Design 1 & 2

Computer Science courses: SCRATCH, Comp. Sci. C++, Python, JAVA, AP Computer Science and AP Computer Science Principles (JAVA language), Arduino.

Admissions Criteria
- ❑ Student interest and commitment to program
- ❑ Academic grades of "B" or better in middle school

Admissions Process
- ❑ Applications available online at **www.Lakeland.K12.nj.us UPAL Application link**
- ❑ Same application for all UPAL Programs
- ❑ Indicate first and second choice on application
- ❑ Parent endorsement paperwork must be completed

Submit application via e-mail: UPAL@Lakeland.k12.nj.us

Primary Deadline for Application:
LAST Friday of January @ 4:00 PM