Agricultural Engineering Curriculum

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Outline

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3. Expected Outcomes of the Proposed Changes
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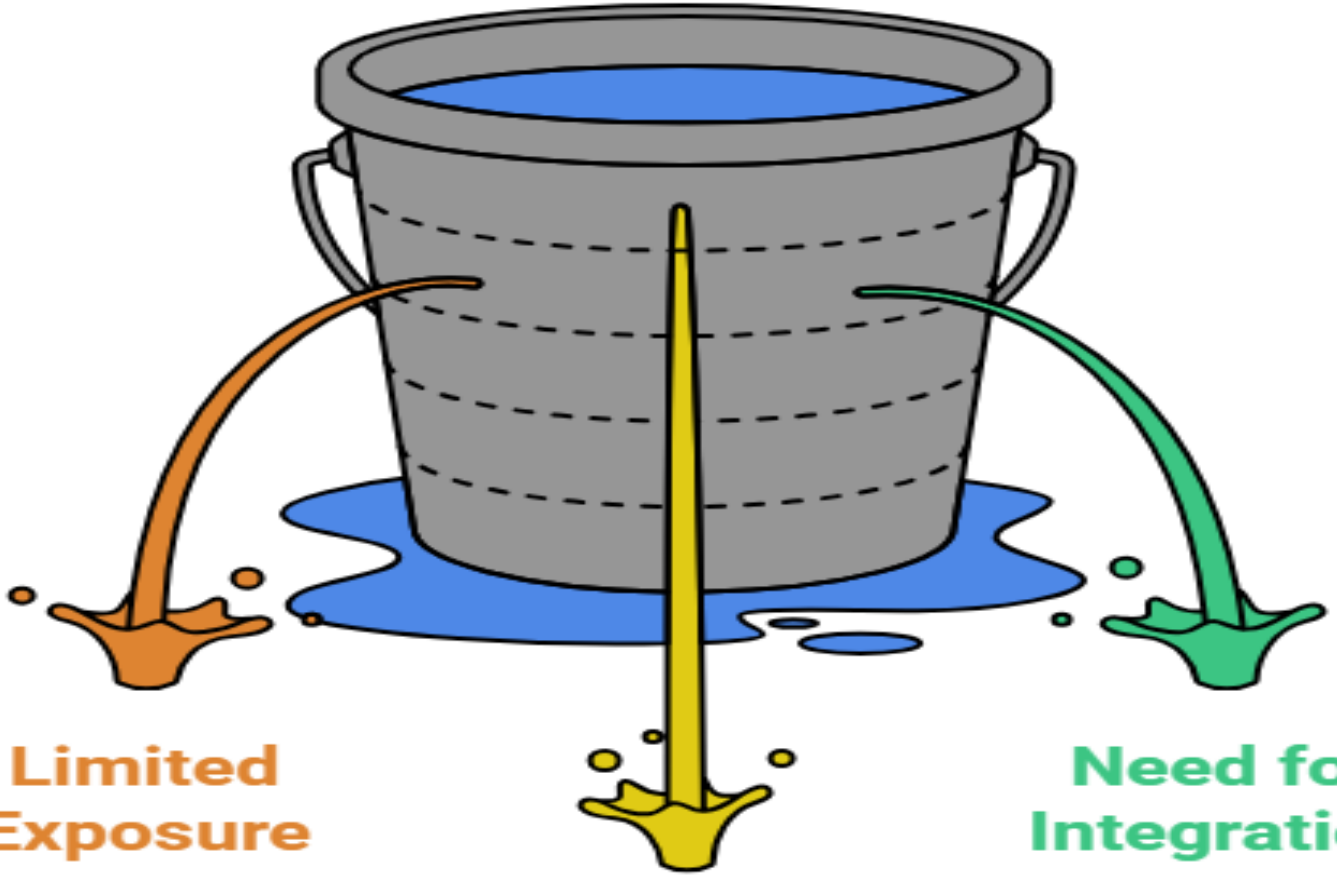
5. Diverse Career Paths in Agricultural Engineering
6. The Future - Responding to Rapid Technological Change

Agricultural Engineering Curriculum Prior To 2006

- Completed their 2nd and 3rd year studies at Howard College (HC).
- Took a combination of modules from Civil, Mechanical, and Electrical & Electronic Engineering programmes.
- Only moved to the Pietermaritzburg campus in their final year, where they were exposed to Agricultural Engineering-specific modules and staff.

Challenges with Old Agricultural Engineering



Limited Exposure

Late engagement with specialization

Insufficient Time

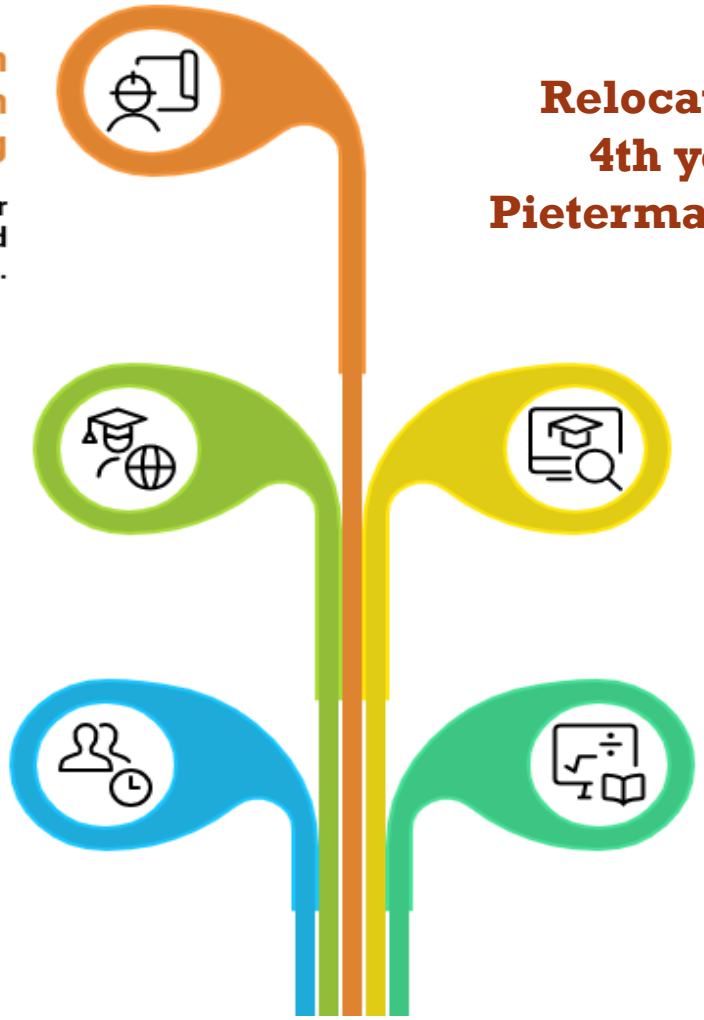
Less time for practical application

Need for Integration

Lacks progressive knowledge building

Expected Outcomes of the Proposed Changes Introduced the Current Curriculum

Relocating both 3rd and 4th year studies to the Pietermaritzburg campus



Greater Emphasis on Design and Problem Solving

More resources for synthesis, analysis, and evaluation skills.

Broader Coverage of Fields

New modules expand program scope with diverse disciplines.

Improved Exposure and Contact Time

Increased interaction with staff and content earlier in program.

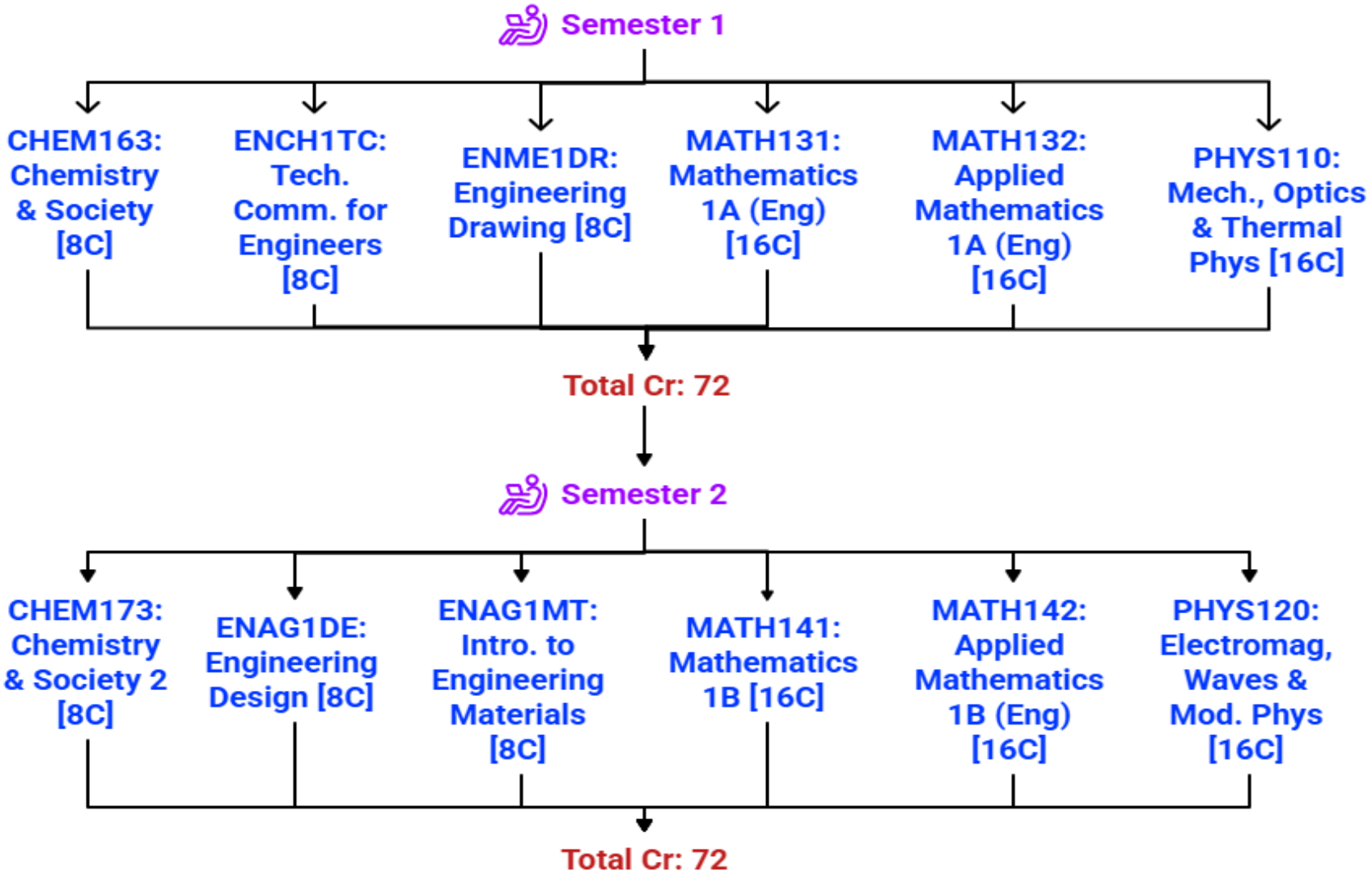
Opportunity for Specialization

Expanded electives allow deeper pursuit of student interests.

Enhanced Curriculum Focus

Modules tailored for deeper Agricultural Engineering knowledge.

First Year Agricultural Engineering Curriculum



Top Semester Coursework Load

Physics

Physics modules contribute 16 credits each semester

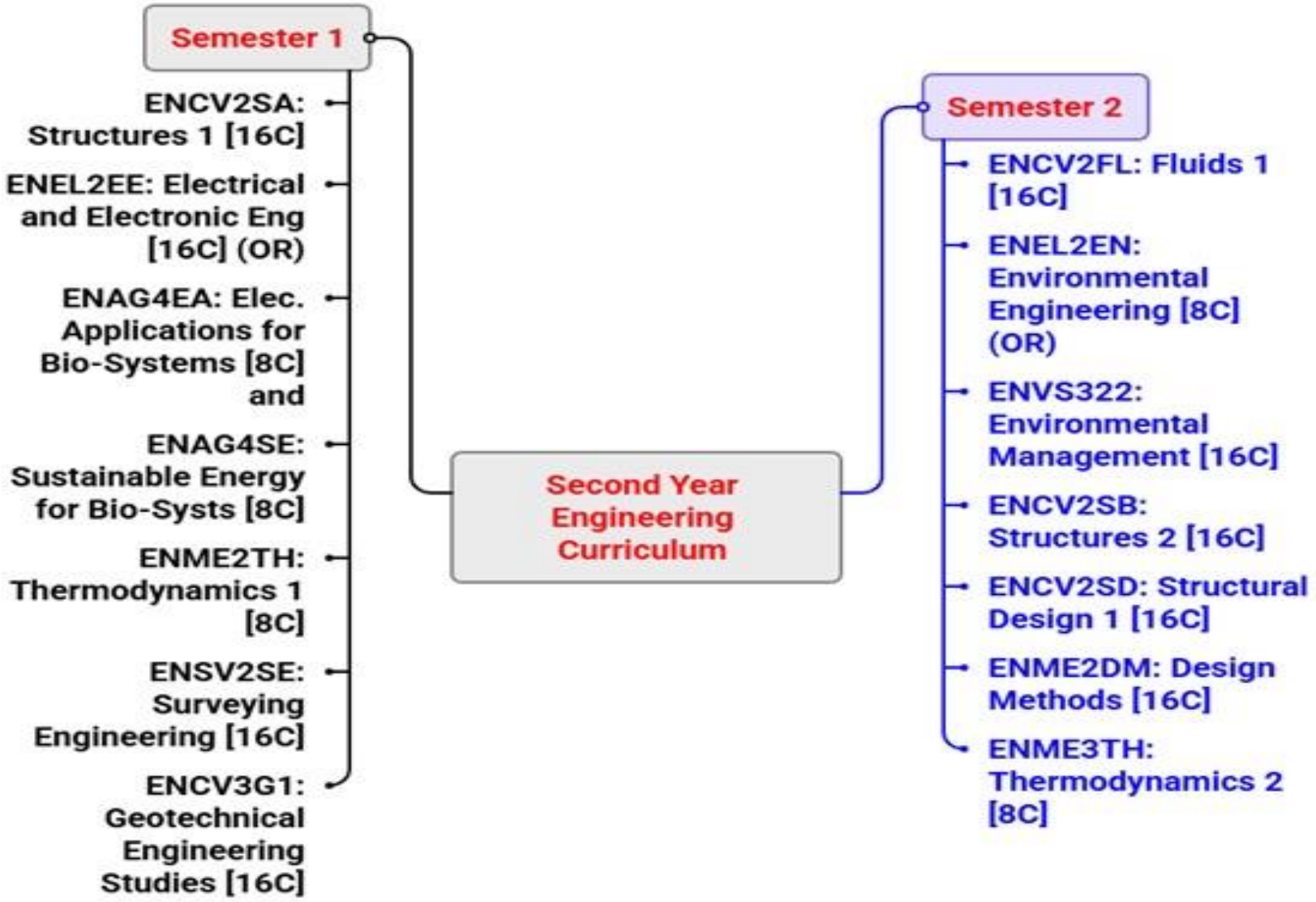
Mathematics

Mathematics modules dominate with 32 credits each semester

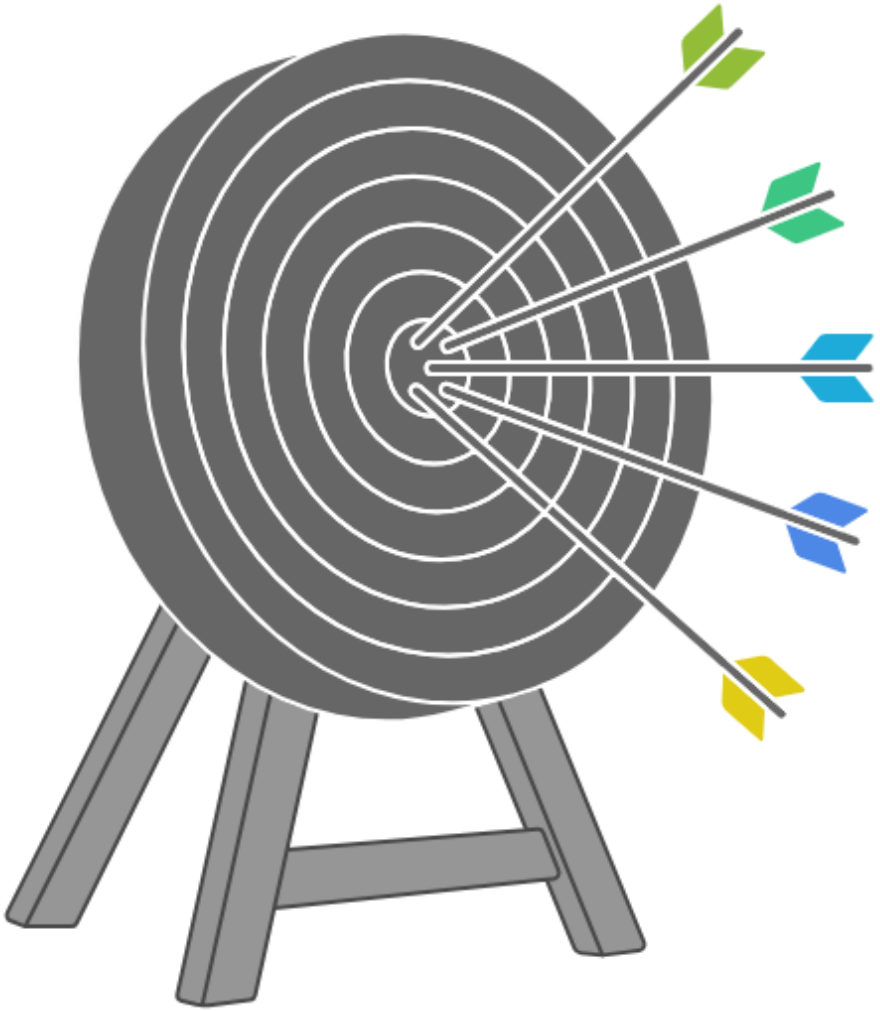
Chemistry

Chemistry modules provide 8 credits each semester

Second Year Agricultural Engineering Curriculum



Engineering Course Structure



Engineering Core

Foundational knowledge for all disciplines

Electrical Engineering

Focus on electrical systems and electronics

Agriculture and Environmental Engineering

Study of agricultural, environmental management and sustainability

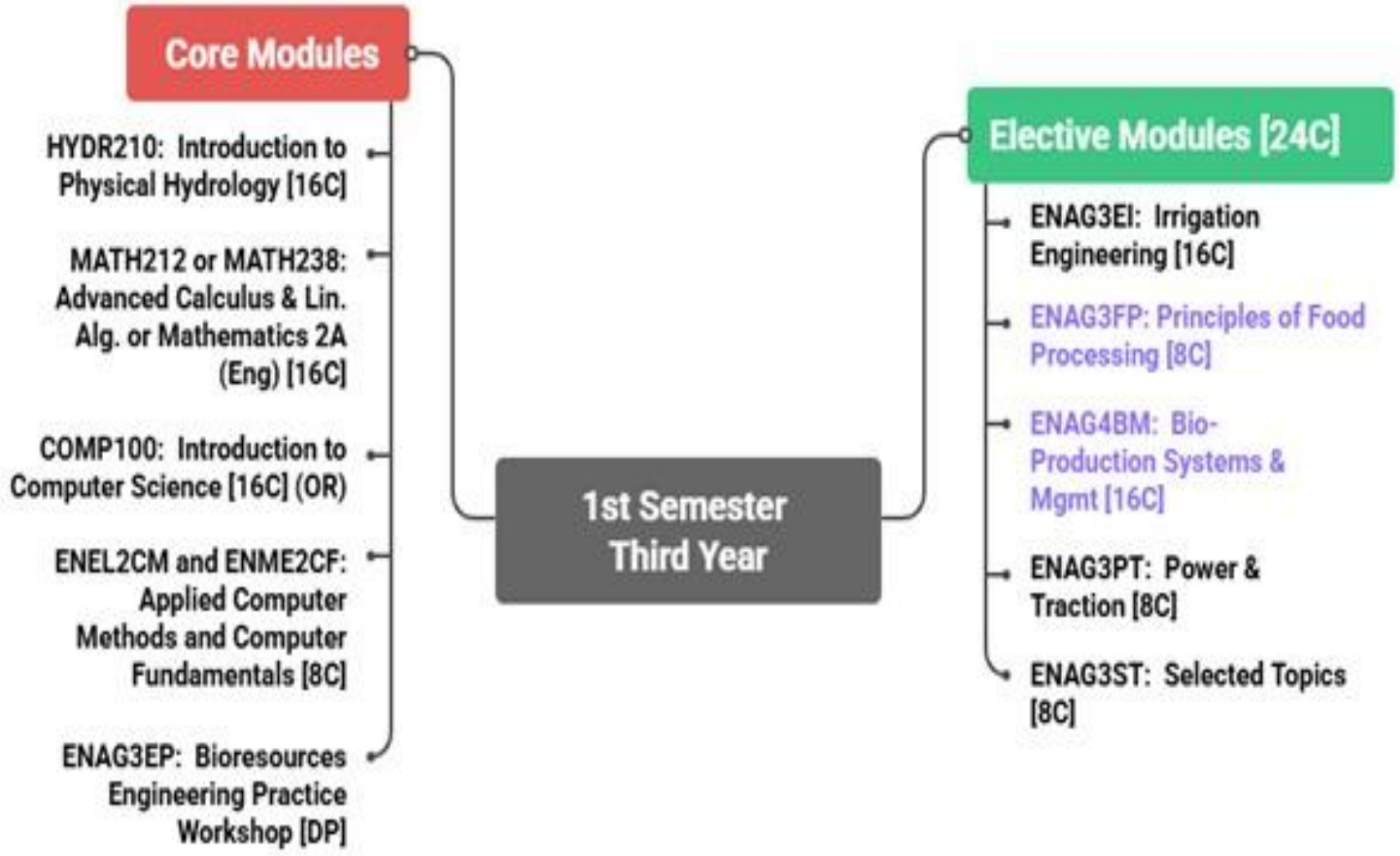
Mechanical Engineering

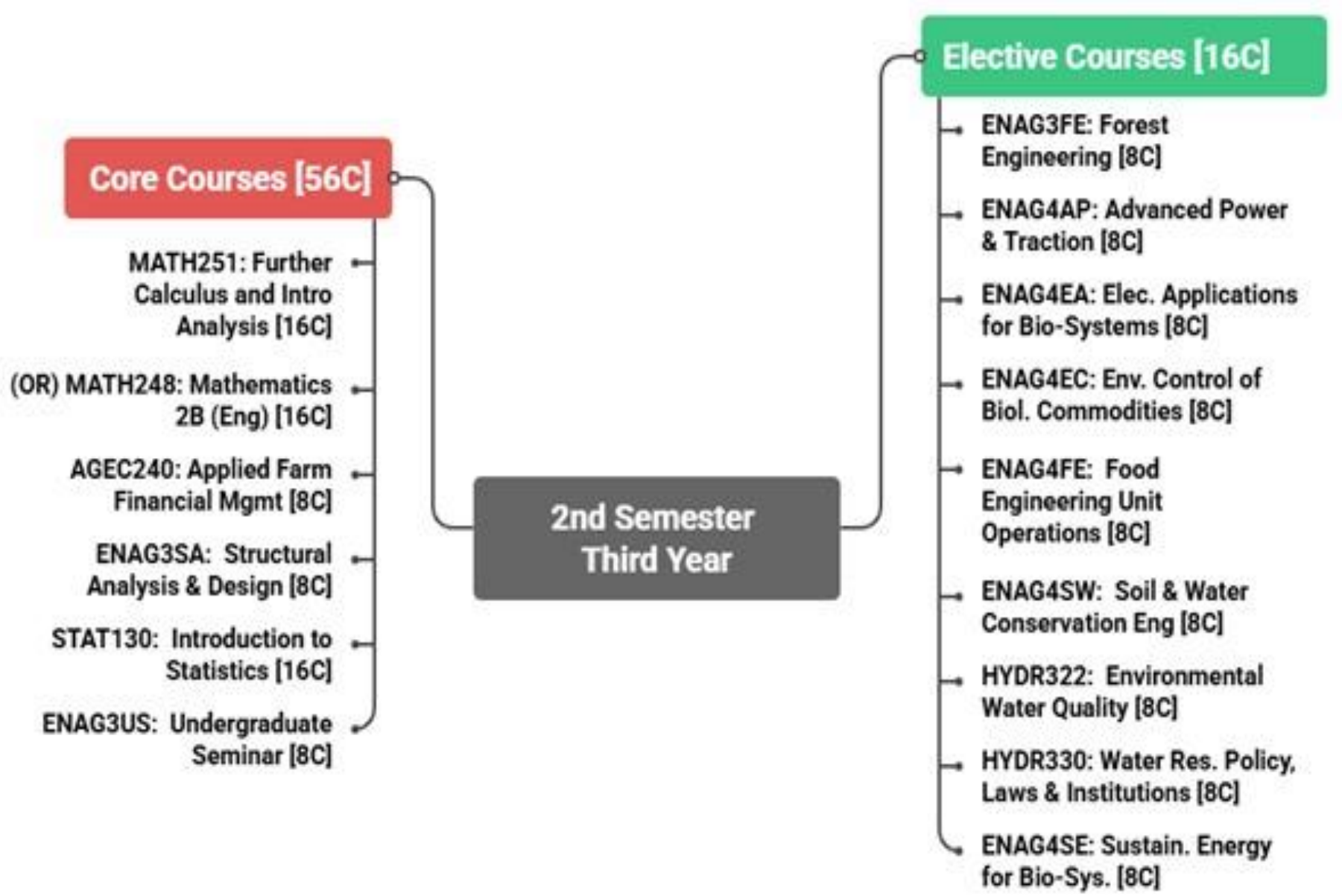
Principles of thermodynamics and design

Civil Engineering

Structures and geotechnical studies

Third-Year Agricultural Engineering Curriculum

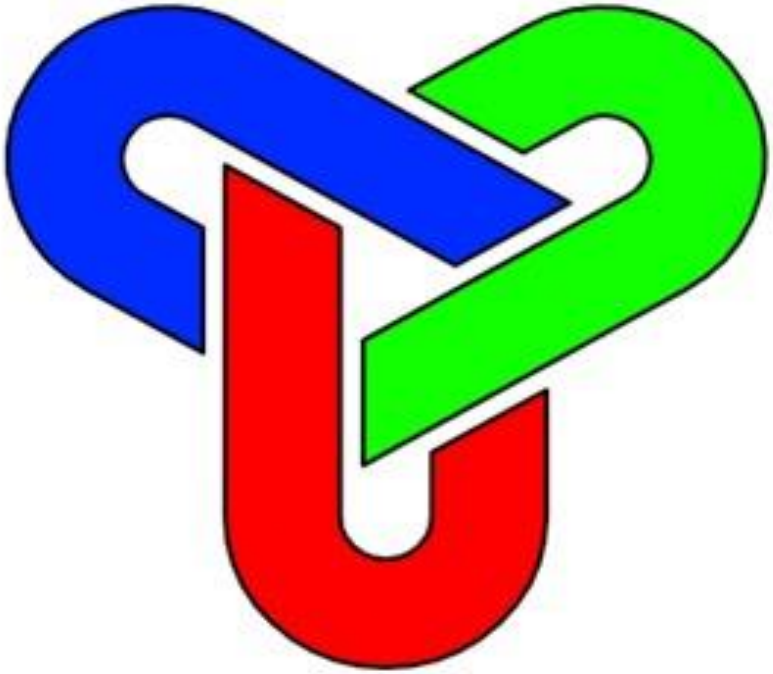



2nd Semester
Third Year
Core Courses [56C]
MATH251: Further Calculus and Intro Analysis [16C]
(OR) MATH248: Mathematics 2B (Eng) [16C]
AGEC240: Applied Farm Financial Mgmt [8C]
ENAG3SA: Structural Analysis & Design [8C]
STAT130: Introduction to Statistics [16C]
ENAG3US: Undergraduate Seminar [8C]
Elective Courses [16C]
ENAG3FE: Forest Engineering [8C]
ENAG4AP: Advanced Power & Traction [8C]
ENAG4EA: Elec. Applications for Bio-Systems [8C]
ENAG4EC: Env. Control of Biol. Commodities [8C]
ENAG4FE: Food Engineering Unit Operations [8C]
ENAG4SW: Soil & Water Conservation Eng [8C]
HYDR322: Environmental Water Quality [8C]
HYDR330: Water Res. Policy, Laws & Institutions [8C]
ENAG4SE: Sustain. Energy for Bio-Sys. [8C]

Third-year Agricultural Engineering Curriculum

Semester 1 Modules

Foundational modules including hydrology and calculus



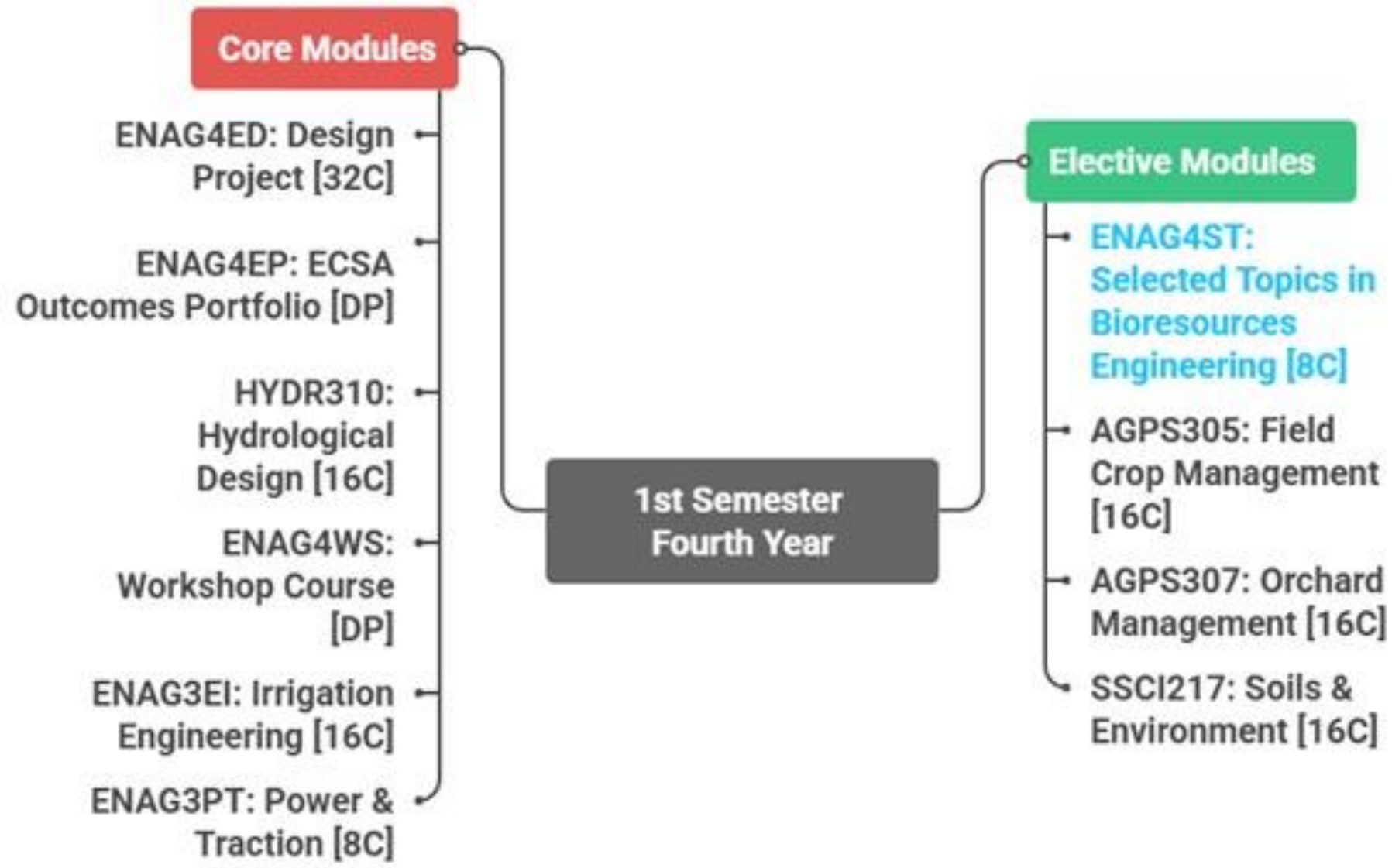
Elective Modules

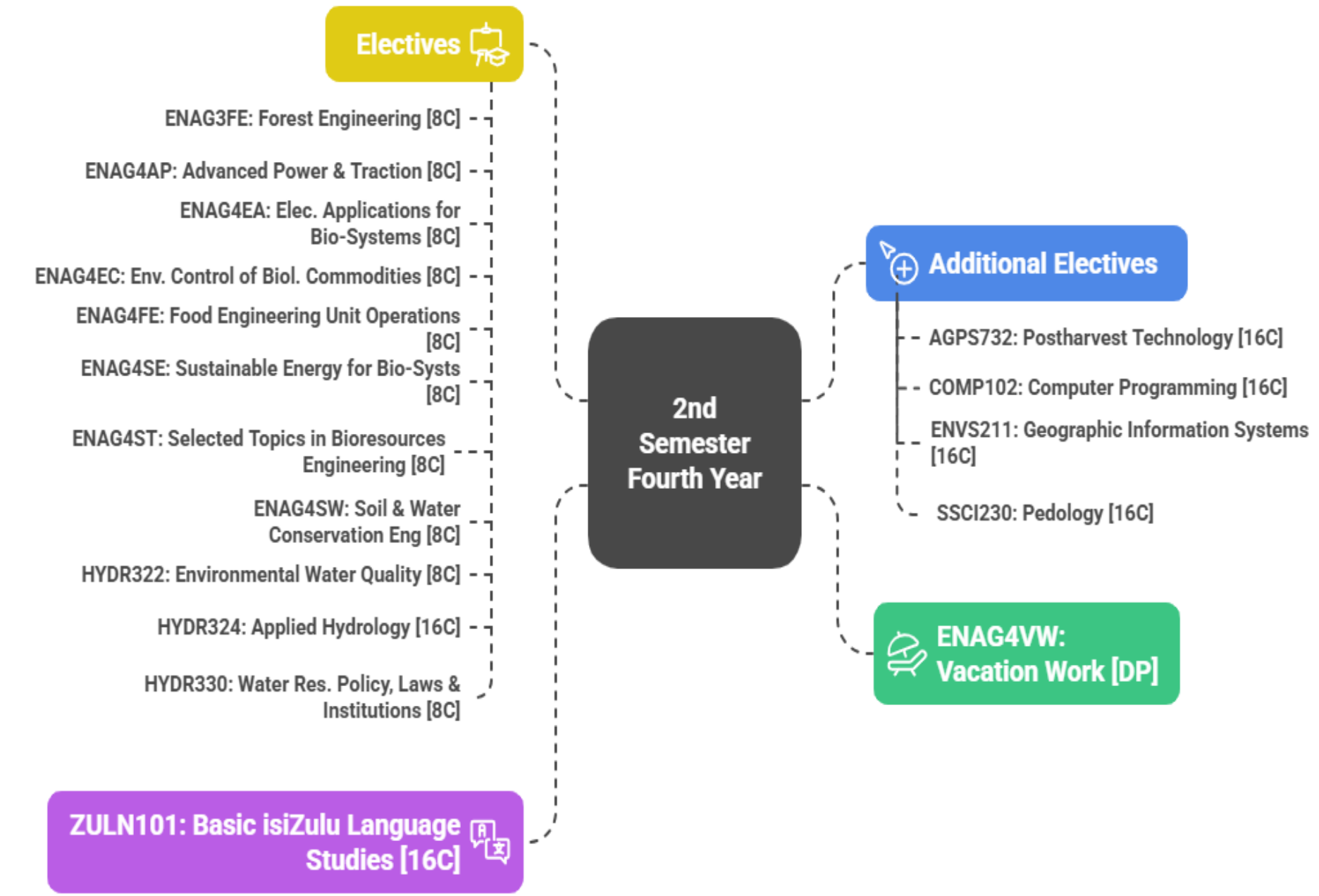
Optional modules allowing specialization in various engineering fields

Semester 2 Modules

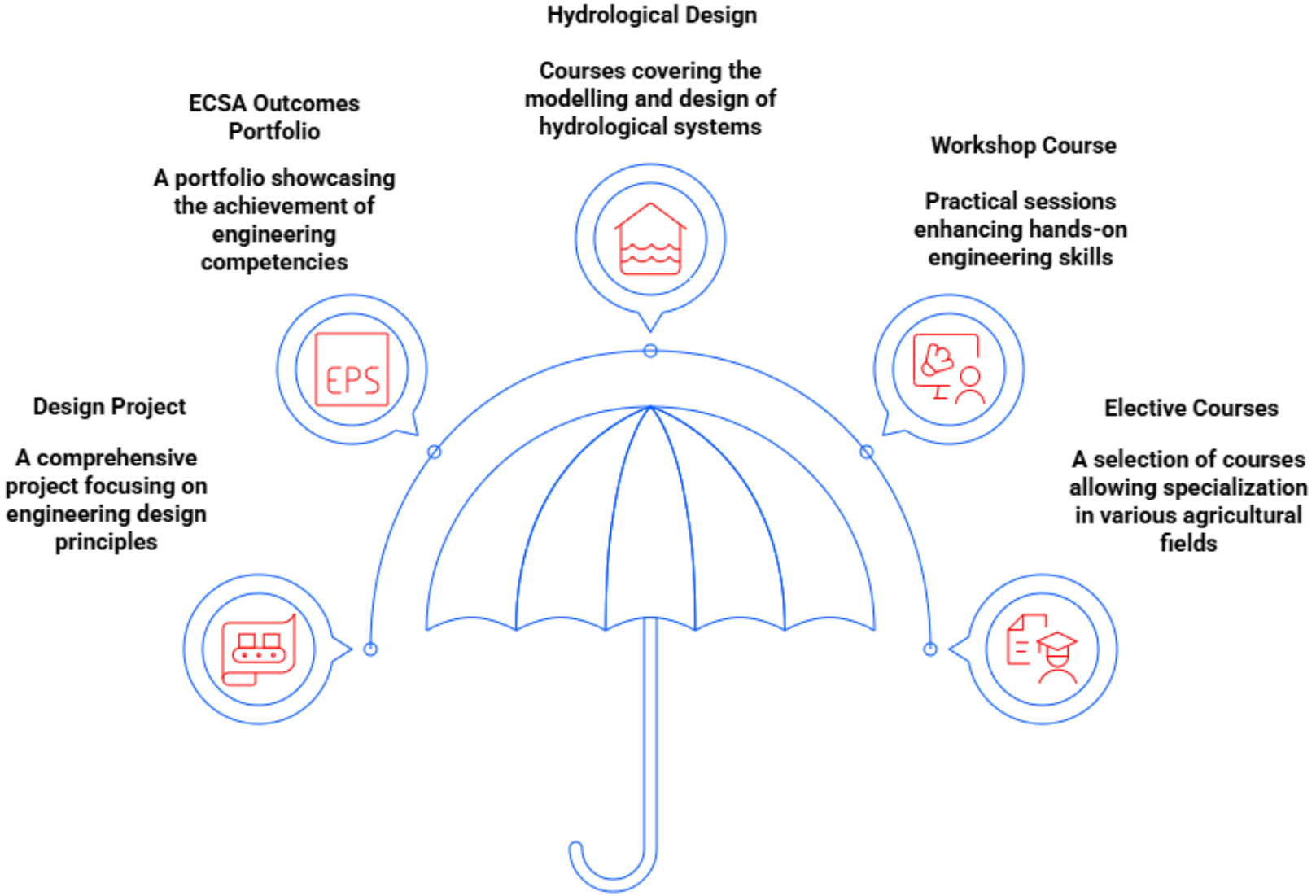
Advanced modules focusing on analysis and statistics

Forth-Year Agricultural Engineering curriculum

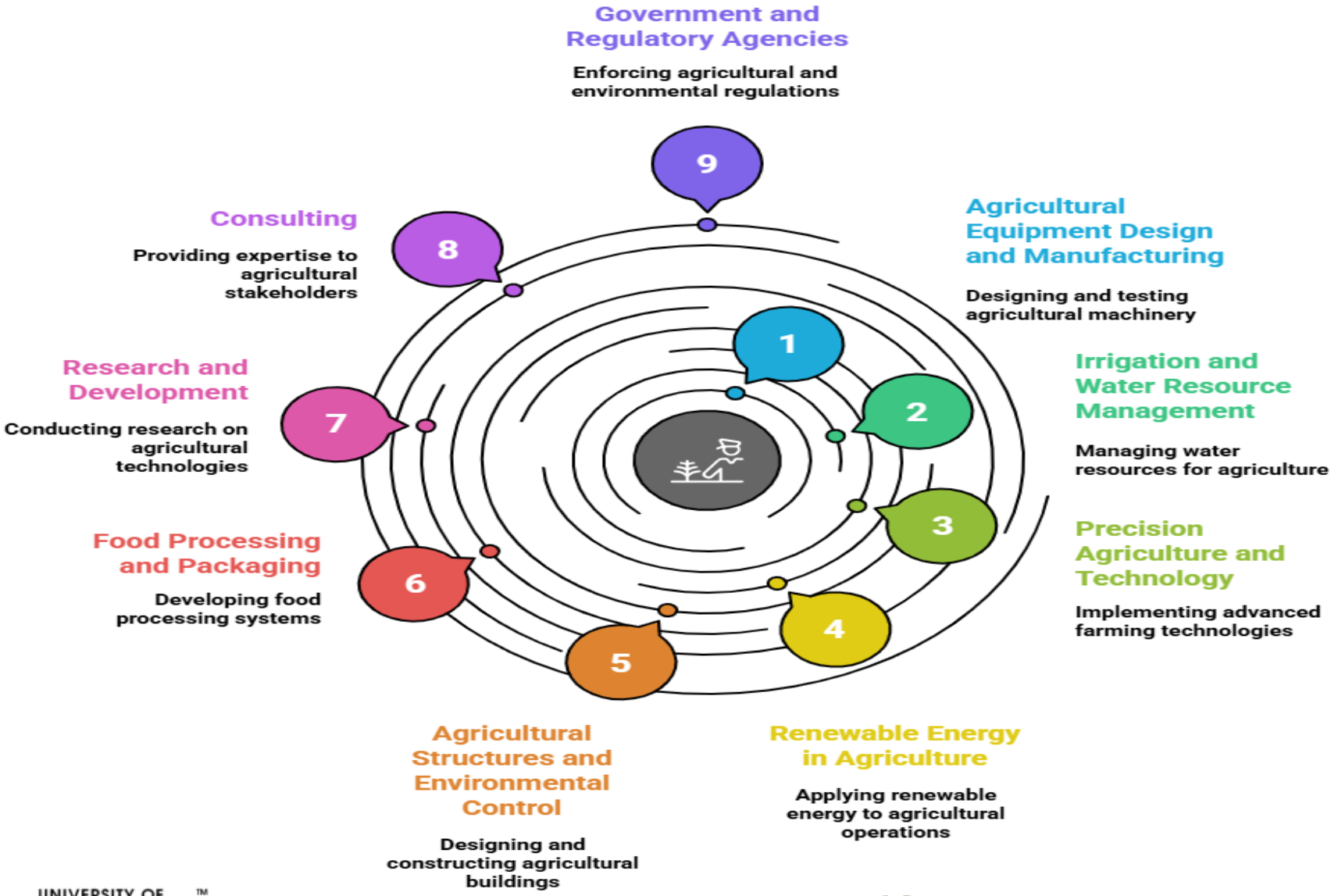



Electives
ENAG3FE: Forest Engineering [8C]
ENAG4AP: Advanced Power & Traction [8C]
ENAG4EA: Elec. Applications for Bio-Systems [8C]
ENAG4EC: Env. Control of Biol. Commodities [8C]
ENAG4FE: Food Engineering Unit Operations [8C]
ENAG4SE: Sustainable Energy for Bio-Systs [8C]
ENAG4ST: Selected Topics in Bioresources Engineering [8C]
ENAG4SW: Soil & Water Conservation Eng [8C]
HYDR322: Environmental Water Quality [8C]
HYDR324: Applied Hydrology [16C]
HYDR330: Water Res. Policy, Laws & Institutions [8C]
ZULN101: Basic isiZulu Language Studies [16C]
2nd Semester Fourth Year
Additional Electives
AGPS732: Postharvest Technology [16C]
COMP102: Computer Programming [16C]
ENVS211: Geographic Information Systems [16C]
SSCI230: Pedology [16C]
ENAG4VW: Vacation Work [DP]

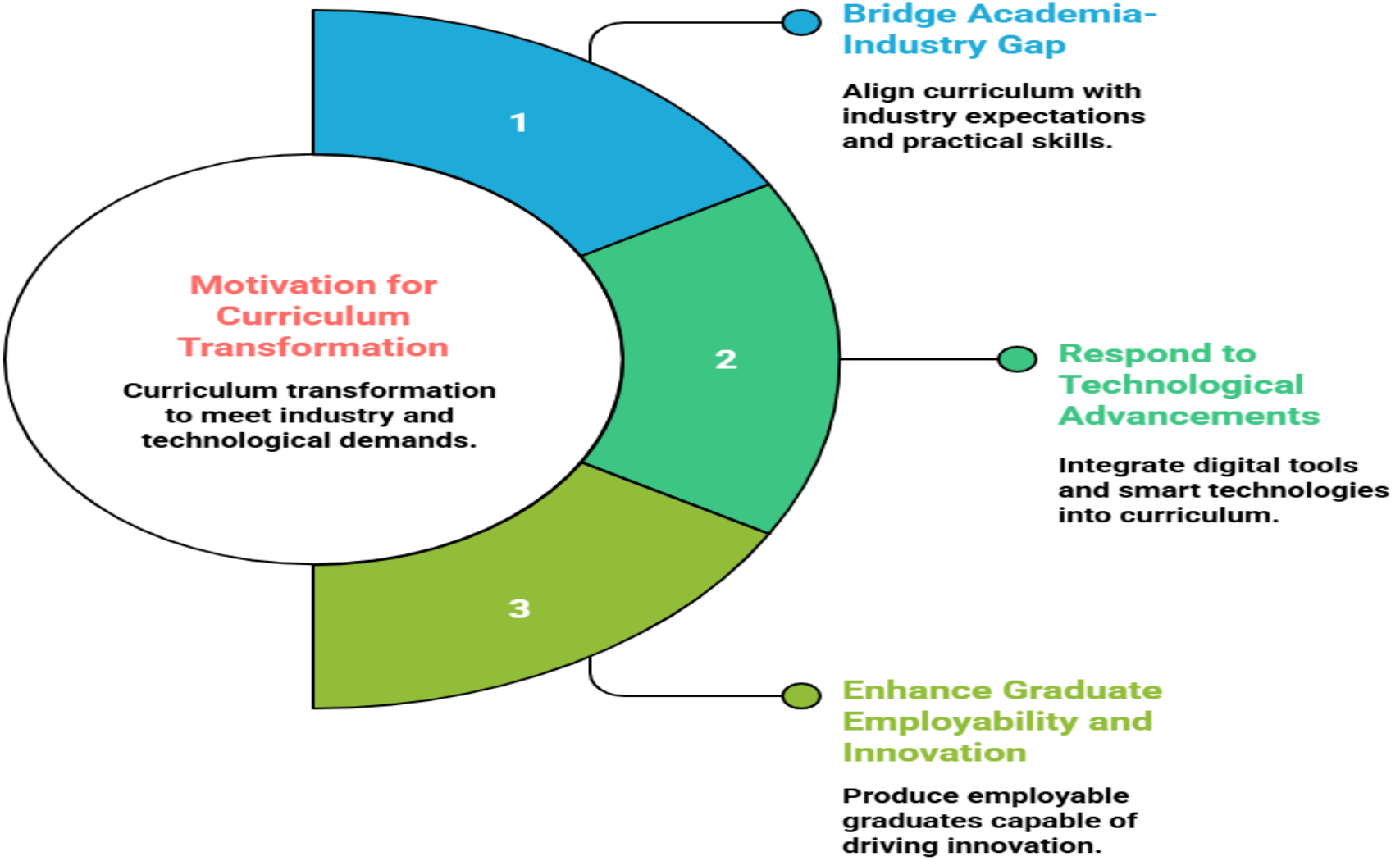
Overview of Agricultural Engineering Modules



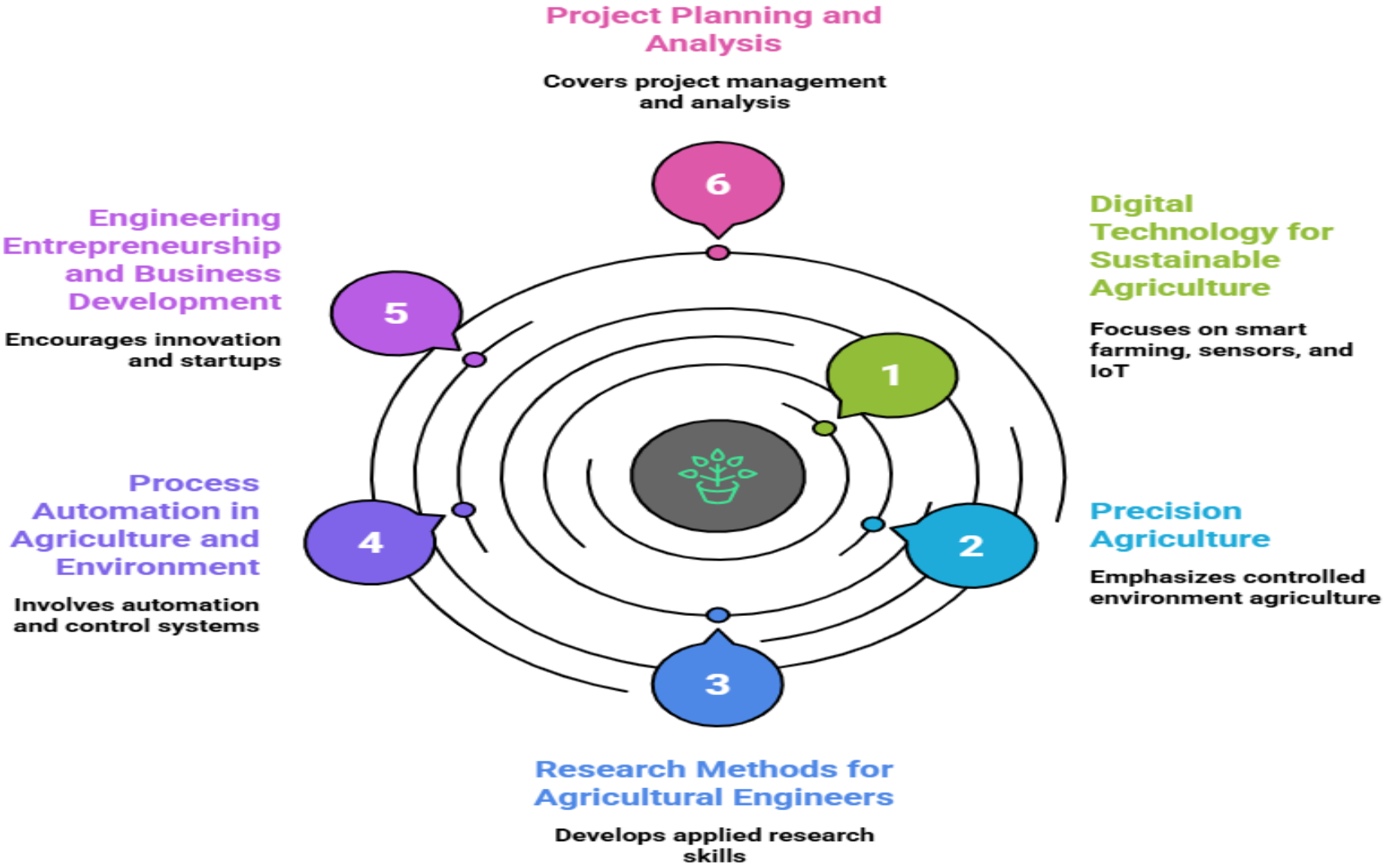
Diverse Career Paths in Agricultural Engineering



Changes to the Agricultural Curriculum to respond to Rapid Technological Change



Introduction and Adapting Modules and contents to respond to Rapid Technological Change



THANK YOU FOR LISTENING