Major Work of NC Local Option Math III

High School	
Major Clusters	**Supporting/Additional Clusters**
Quantities • Reason quantitatively and use units to solve problems. **Seeing the Structure in Expressions** • Interpret the structure of expressions. • Write expressions in equivalent forms to solve problems. **Arithmetic with Polynomials and Rational Expressions** • Understand the relationship between zeros and factors of polynomials. **Creating Equations** • Create equations that describe numbers or relationships. **Reasoning with Equations and Inequalities** • Understand solving equations as a process of reasoning and explain the reasoning. • Represent and solve equations and inequalities graphically. **Interpreting Functions** • Understand the concept of a function and understand function notation. • Interpret functions that arise in applications in terms of the context. • Analyze functions using different representations.	**The Real Number System** • Use properties of rational and irrational numbers. **The Complex Number System** • Perform arithmetic operations with complex numbers. • Use complex numbers in polynomial identities and equations. **Arithmetic with Polynomials and Rational Expressions** • Perform arithmetic operations on polynomials. • Use polynomial identities to solve problems. • Rewrite rational expressions. **Reasoning with Equations and Inequalities** • Solve equations and inequalities in one variable. **Building Functions** • Build new functions from existing functions. **Trigonometric Functions** • Extend the domain of trigonometric functions using the unit circle. • Model periodic phenomena with trigonometric functions. • Prove and apply trigonometric identities.

Building Functions

- Build a function that models a relationship between two quantities.

Linear, Quadratic and Exponential Models

- Construct and compare linear, quadratic, and exponential models and solve problems.

Congruence

- Prove geometric theorems.

Modeling with Geometry

- Apply geometric concepts in modeling situations.

Interpreting Categorical and Quantitative Data

- Summarize, represent, and interpret data on a single count or measurement variable.

Making Inferences and Justifying Conclusions

- Make inferences and justify conclusions from sample surveys, experiments, and observational studies.

Congruence

- Experiment with transformations in the plane.
- Make geometric constructions.

Similarity, Right Triangles, and Trigonometry

- Understand similarity in terms of similarity transformations.
- Prove theorems involving similarity.

Expressing Geometric Properties with Equations

- Translate between the geometric description and the equation for a conic section. (Here because of circles.)

Circles

- Understand and apply theorems about circles.
- Find arc lengths and areas of sectors of circles.

Making Inferences and Justifying Conclusions

- Understand and evaluate random processes underlying statistical experiments.

Using Probability to Make Decisions

- Use probability to evaluate outcomes of decisions.