HUDSON COUNTY COMMUNITY COLLEGE

I.	Course ID (department & number): MAT-080
II.	Course Name: College Algebra Workshop
III.	Number of Credits Awarded for Course: 1
IV.	Prerequisite or Co-requisite courses or academic standing (if applicable): Prerequisite: MAT-100, College Algebra, or High School Algebra I
V.	Indicate if New or Modified Course: New
VI.	Semester and Year Course will First be Offered: Summer 2021
VII.	Name and Telephone Number and/or e-mail address of department chair or other appropriate contact person: Heather DeVries, Academic Representative to NJ Transfer hdevries@hccc.edu 201-360-4660
VIII.	Detailed Course Description: This course covers topics in pre-calculus, including polynomials, rational, logarithmic, and exponential functions and their applications. The lab hour reinforces concepts discussed during the lecture hour.
IX	Outline of Course Objectives

Course Objective 1: manipulate and solve equations involving polynomial and rational expressions. Students will be able to:

1.1 ***Learning Outcome:*** add, subtract and multiply polynomial expressions.
1.2 ***Learning Outcome:*** factor polynomial expressions.
1.3 ***Learning Outcome***: solve equations containing polynomial expressions.
1.4 ***Learning Outcome:*** add, subtract, multiply, and divide rational expressions.

Course Objective 2: analyze and graph polynomial and rational functions. Students will be able to:

2.1 ***Learning Outcome:*** solve equations containing rational expressions.
2.2 ***Learning Outcome:*** identify the domain, range, end -point behavior and asymptotes of quadratic & rational functions.
2.3 ***Learning Outcome:*** evaluate real-world problems using rational function models.

Course Objective 3: explore exponential and logarithmic functions and use their properties to model and solve real-world applications involving compound interest, growth and decay problems. Students will be able to:

3.1 ***Learning Outcome:*** simplify exponential and logarithmic equations.

	3.2 ***Learning Outcome:*** use the properties & laws of exponents and logarithms to solve exponential and logarithmic equations. 3.3 ***Learning Outcome:*** solve equations and application problems involving exponential and logarithmic functions. 3.4 ***Learning Outcome:*** solve exponential & logarithmic models that include, but not limited to, bacterial growth, exponential decay, compound and simple interest.
X.	Texts, Journals and Other Materials used in Course Precalculus Mathematics for Calculus; 7th Edition, Cengage *James Stewart, Lothar Redlin & Saleem Watson* Student Edition: ISBN: 978-1-305-07175-9 Loose-leaf Edition: ISBN: 978-1-305-58602-4
XI.	Grade Determinants The grade for the course will be based on homework (HW) & class participation, three one-hour exams and a cumulative two-hours final exam: Exam #1 20% Exam #2 20% Exam #3 20% HW & Class Participation 10% Cumulative Final Exam 30%
XII.	Number of Papers & Examinations See above.
XIII.	Schedule of Topics to be Covered See below

Session	Topic	Homework	SLO
1	1.3 Algebraic Expressions	Page 33: # 23, 47, 52, 69, 73, 81, 96, 121, 127	1.1
2	1.4 Rational Expressions	Page 43: # 12, 14, 22, 32, 44, 54, 73, 76, 80, 82	1.1, 1.2
3	1.5 Solving Linear & Quadratics Equations	Page 56: # 18, 23, 25, 29, 65, 69, 89	1.1, 1.2, 1.3
4 &5	1.7 Modeling with Equations: Simple Interest, Areas, Distance Rate & Time Problems	Page 75: # 25, 31, 39, 43, 53, 55, 64, 71, 75, 90	1.1, 1.2, 1.3, 1.4

6	**Review for Exam**		
7 & 8	**Exam 1**		
9	3.1 Quadratic Functions and Models	Page 252: # 11, 15, 17, 19, 25, 48	1.1, 1.2, 1.3, 2.2
10	3.1 Modeling with Quadratic Functions	Page 253: #51, 52, 53, 54, 56, 63, 65	1.1, 1.2, 1.3, 2.2
11	3.2 Polynomial Functions and Their Graphs	Page 266: # 9, 10, 11, 12, 13, 14, 51, 52, 54	1.1, 1.2, 1.3, 2.2
12	3.3 Dividing Polynomials	Page 273: # 5, 7, 10, 13, 17, 19, 21, 27, 31, 57	1.1, 1.2, 1.3, 1.4, 2.2
13	3.6 Rational Functions: Domain, Range, Asymptotes and Applications	Page 308: # 13, 15, 21, 23, 26, 27, 29, 31, 49, 60, 62, 88	1.1, 1.2, 1.3, 2.2, 2.3
14	**Review for Exam**		
15 & 16	**Exam 2**		
17	4.1 Exponential Functions	Page 43: # 22, 23, 32, 34, 46	3.1
18	4.2 The Natural Exponential Function & Applications	Page 341: # 13, 14, 23, 34, 35, 37	3.1
19	4.3 Logarithmic Functions & Applications	Page 351: # 13, 16, 21, 24, 29, 31, 44, 56, 90, 98	3.1, 3.2, 3.3, 3.4
20	4.4 Laws of logarithms & Change of Base Rule	Page 359: # 17, 40, 32, 34, 46, 47, 53, 56, 63	3.1, 3.2, 3.3, 3.4
21 & 22	4.5 Exponential and Logarithmic Equations. Applications: Compounded and Continuous Interest	Page 368: # 19, 21, 23, 25, 39, 41, 51, 66, 67, 87, 90, 91	3.1, 3.2, 3.3, 3.4
23	4.6 Modeling with Exponential Functions: Exponential Growth & Radioactive Decay	Page 378: # 2, 6, 10, 13, 14, 16, 18, 22, 23, 24, 26	3.1, 3.2, 3.3, 3.4
24	**Review for Exam**		
25 &26	**Exam 3**		
27 &28	**Review**		
29 &30	**Comprehensive Final**	**ALL CHAPTERS**	