Ecole Internationale Provence-Alpes-Côte d'Azur

Forward Planning
Long-Term Semester Planning

Academic Year: 2022-2023

Class: S7
Subject: Mathematics 5 periods
Teacher: Ms Rebeca Morones
No. Students: 15

Curriculum – Long-Term Planning 2022-2023

Date	Learning Objectives	Activities	Resources	Key Competences	Learning Outcomes / Assessment
September	Functions	- Review of functions: - Rational functions: Asymptotes and oblique asymptotes - Intersection of functions - $\boldsymbol{\lambda(e^{ax}+e^{-ax})}$ - $\boldsymbol{\lambda x^a \ln x}$ for $\boldsymbol{a} \in \{-2,-1,1,2\}$ - Study limits and indeterminate forms such as $\frac{\infty}{\infty}, \frac{0}{0}, 0 \times \infty$.	- Geogebra - Worksheets		
October - November	Integration part I	- Primitive - Integral in a closed interval $[a,b]$ and its interpretation as an area. - Improper integrals - Properties of integrals - Integration by substitution - Integration by parts	- Geogebra - Worksheets	1, 2, 3, 5, 6	- Homework - Classwork - Test

November - December	Complex numbers	- Review - Argument and modulus form and its inverse. - Euler form - Properties of both forms - Use the best form in order to solve equations. - Finding the nth root. ($\boldsymbol{z^n = a, a \in \mathbb{C}, n \in \mathbb{N} \setminus \{0,1\}}$) . - Graphic representation of solutions.	- Worksheets. - Geogebra	1, 2, 3, 4, 5, 6	
January	Vectors	- Review - Vector product and its applications. (test for coplanar points) - Find planes in 3D space (cartesian and parametric equations) : By two lines that lie in the plane. With two vectors and a point. With three points - Distances in 3D (point to a line, point to a plane, between two planes, between two lines) - Angles 3D (two vectors, two lines, two planes, plane and line) - Intersection (two lines, line and plane) - Parallelism of lines and planes	- Worksheets - Geogebra	1, 2, 3, 4, 5, 6, 7, 8	- Classwork - Homework

January - February	Continuous distribution	- Definition - Probability density $\int_{-\infty}^{\infty} \boldsymbol{f(x)dx = 1}$ - Calculate prbabilities using integration. - Cumulative distribution function - Expected value, variance and standard deviation. - Normal distribution - Standarisation - Applications.	- Worksheets - Geogebra	1, 2, 3, 4, 5, 6, 7	- Homework - Classwork - Test
March	Integration part II	- Solids of revolution	- Geogebra - Worksheets	1, 2, 3, 4, 5, 6, 7, 8	- Homework - Classwork
March-April	Bivariate Statistics	- Scatter diagrams (mean, interpretation) - Least square regression. - Pearson's correlation coefficient - Correlation analysis - Regression models (linear, logarithmic, exponential - Identify outliers - Use regression model to make inperpolations, extrapolations and forecasts.	- Worksheets. - Geogebra. - Bingo game.	1, 2, 3, 4, 5, 6	Homework/Classwork Test

* Link to 8 key competences:

1. Literacy (reading and writing)
2. Multilingualism
3. Mathematics, Science, Technology and Engineering

4. Digital
5. Personal, Social and Learning to Learn
6. Citizenship
7. Entrepreneurship
8. Cultural Awareness and Expression