강의계획서 (SYLLABUS)

1. 과목개요

강좌명 (Course Title)	복소수함수론1	담당교수 (Instructor)	송윤정
년도 (Year)	2021학년도	학기 (Semester)	1 학기
주요교재 및 참고자료 (Required Texts)	주교재	*Complex Variables and Applications/Brown and Churchill/McGraw Hill/8/Old editions are fine./지정도서	
	참고교재 (대표)	*복소함수론/김정헌/북스힐/2021	
교과목 개요 (Course Description)	This is the first part of the two-semester series of Complex Analysis which sets basis for understanding the structure of complex numbers and the applications of those, especially of analytic functions which will be treated mainly in the second semester. This class covers definition of complex numbers, elementary functions and series in complex numbers.		

2. 주차별 강의개요

주 (Week)	핵심어 (Keyword)	강의별 설명 (Description)
01	Syllabus, Definition of complex numbers, Complex field	This video contains explanantions about Syllabus, Definition of complex numbers, and Complex field.
02	Ordered field, geometry of complex numbers	This video talks about Ordered field and the geometry of complex numbers.
03	conjugate / properties of conjugate / identities involving modulus	This video exaplains conjugate, properties of conjugate, and identities involving modulus.
04	polar representation / arg z / Arg z / product in polar	This video explains polar representation, arg z, Arg z, and product in polar.
05	z^n / DeMoivre's Theorem / Euler's formula / exponential form / nth roots of a complex number	This video explains z^n, DeMoivre's Theorem, Euler's formula, exponential form, and the nth roots of a complex number.
06	nth roots of unity / neighborhood of a complex number / bounded set / interior point of a set	This talks about nth roots of unity, neighborhood of a complex number, bounded set, and interior point of a set. It also includes some explanations on Quiz#1.
07	open set / limit point of a set / closed set / closure of a set	This talks about an open set, limit point of a set, a closed set, and the closure of a set.
08	$z^{(-1/n)}$ / boundary point of a set / boundary of a set / connected set	We talk about $z^{(-1/n)}$, boundary point of a set, boundary of a set, and a connected set.
09	domain / region / (single-valued) function / preimage / image / onto / one-to-one / inverse function	This video explains domain, region, (single-valued) function, preimage, image, onto, one-to-one, and inverse function.
10	translation / rotation / dilation / linear mapping / inversion	This video explains translation, rotation, dilation, linear mapping, and inversion.
11	sequence of complex numbers / limit of a complex sequence / limit of a complex-valued function / limit point in terms of a sequence	We talk about sequence of complex numbers, limit of a complex sequence, limit of a complex-valued function, and limit point in terms of a sequence.
12	Bolzano-Weierstrass on a complex plane	We talk about Bolzano-Weierstrass Theorem on a complex plane.
13	Inversion / exponential function	This contains Inversion and exponential function.
14	Continuity of a complex-valued function	We examine the continuity of a complex-valued function.
15	differentiable at a point / analytic on an open set / entire / analytic at a point	We talk about differentiability at a point, analytic on an open set, entire, and what it means by analytic at a point.