Matrices

Architectural Department Program
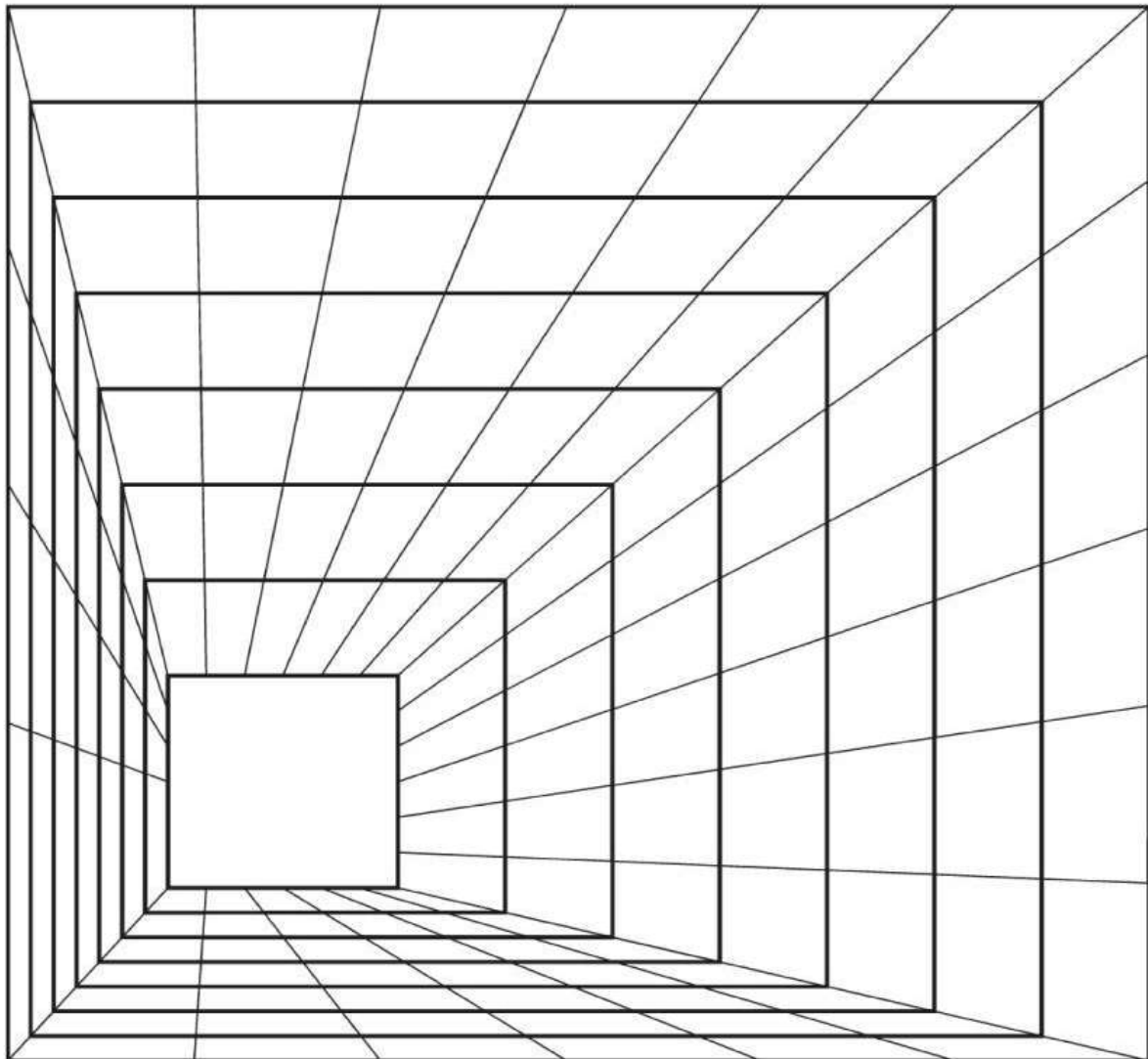
Architectural department (bylaw 2023)

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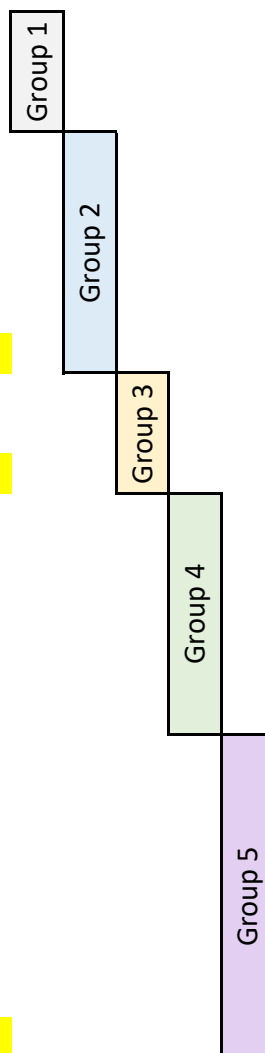
Group 1
Group 2
Group 3
Group 4
Group 5

- Program Mission

Program Mission			Faculty Mission			(NARS 2018) CBE														
			F1	F2	F3	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	B1	B2	B3	B4	B5
The architecture program at the Faculty of Engineering Benha is committed to preparing an architect who is intellectually and scientifically qualified and has the ability to compete in the labor market and keep pace with scientific and technological development in the field of architecture in a manner that serves and achieves the needs of society within the framework of an ethical approach that allows continuous improvement and preservation of the environment and society.	M1	The architecture program at the Faculty of Engineering Benha is committed to preparing an architect who is intellectually and scientifically qualified and has the ability to compete in the market labor.	*					*			*	*	*			*			*	*
	M2	Keep pace with scientific and technological development in the field of architecture.		*		*	*			*				*	*		*	*	*	
	M3	In a manner that serves and achieves the needs of society within the framework of an ethical approach that allows continuous improvement and preservation of the environment and society.			*			*	*		*	*				*	*	*		

Faculty Mission	Benha Faculty of Engineering - Benha University is committed to graduate well prepared engineers equipped with knowledge and skills necessary to compete in labor market, and capable of using and developing modern technology, and providing research in engineering fields to serve society and community.
F1	Benha Faculty of Engineering - Benha University is committed to graduate well prepared engineers equipped with knowledge and skills necessary to compete in labor market.
F2	Capable of using and developing modern technology.
F3	Providing research in engineering fields to serve society and community.

- Program Objectives

PO	Program Objectives	M1	M2	M3	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	B1	B2	B3	B4	B5	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10	G11	G12	G13	G14	University	Faculty	Program	Humanities and Social Sciences	Mathematics and Basic Sciences	Basic Engineering Sciences	Applied Engineering and Design	Computer Applications and ICT	Projects and Practice	Discretionary
PO1	Apply a wide spectrum of engineering knowledge, science and specialized skills with analytic, critical and systemic thinking to identify and solve engineering problems in real life situation.	*	*		*	*							*							*	*														*		*	*		*		*	
PO2	Prepare qualified innovative architects who can adhere to architectural engineering ethics and standards and work to develop the profession and the community and promote sustainability principles.	*		*			*										*					*		*	*								*			*	*	*		*			*
PO3	Work in and lead a heterogeneous team and display leadership qualities, business administration, and entrepreneurial skills.	*									*	*	*										*						*							*				*		*	*
PO4	Use techniques, skills, and modern engineering tools necessary for architectural engineering practice.		*					*	*								*									*										*					*	*	*
PO5	Master self-learning and life-long learning strategies to communicate effectively in academic/professional fields.	*							*			*		*														*	*					*	*	*		*	*	*		*	
PO6	Strengthening students' ability to make decisions, solve problems, and develop architectural and urban solutions to develop and serve the local community.			*						*			*		*	*		*	*											*	*				*	*			*			
PO7	Create architectural designs that satisfy both aesthetic, technical and meet building users' requirements.		*	*				*	*		*				*	*														*	*	*			*				*		*	

Program Mission	The architecture program at the Faculty of Engineering Benha is committed to preparing an architect who is intellectually and scientifically qualified and has the ability to compete in the labor market and keep pace with scientific and technological development in the field of architecture in a manner that serves and achieves the needs of society within the framework of an ethical approach that allows continuous improvement and preservation of the environment and society.
M1	The architecture program at the Faculty of Engineering Benha is committed to preparing an architect who is intellectually and scientifically qualified and has the ability to compete in the market labor.
M2	Keep pace with scientific and technological development in the field of architecture.
M3	In a manner that serves and achieves the needs of society within the framework of an ethical approach that allows continuous improvement and preservation of the environment and society.

- Graduate Attributes

Graduate Attributes	Requirements			Credit Hours of Subject Area						
	University	Faculty	Program	Humanities and Social Sciences	Mathematics and Basic Sciences	Basic Engineering Sciences	Applied Engineering and Design	Computer Applications and ICT	Projects and Practice	Discretionary
G1: Master a wide spectrum of engineering knowledge and specialized skills and can apply acquired knowledge using theories and abstract thinking in real life situations.		1		1	1		1			
G2: Apply analytic critical and systemic thinking to identify, diagnose and solve engineering problems with a wide range of complexity and variation.			1				1		1	1
G3: Behave professionally and adhere to engineering ethics and standards.		1		1		1				1
G4: Work in and lead a heterogeneous team of professionals from different engineering specialties and assume responsibility for own and team performance.		1					1	1		1
G5: Recognize his/her role in promoting the engineering field and contribute in the development of the profession and the community.			1		1	1			1	
G6: Value the importance of the environment, both physical and natural, and work to promote sustainability principles.	1						1		1	
G7: Use techniques, skills and modern engineering tools necessary for engineering practice.		1						1		1
G8: Assume full responsibility for own learning and self-development, engage in lifelong learning and demonstrate the capacity to engage in post- graduate and research studies.	1			1	1	1				
G9: Communicate effectively using different modes, tools and languages with various audiences; to deal with academic/professional challenges in a critical and creative manner.	1			1		1		1		
G10: Demonstrate leadership qualities, business administration and entrepreneurial skills	1						1	1		
G11: Knowing the laws, legislations and requirements in the field of architecture and urbanism and how to apply them to meet local needs and global developments.			1						1	1
G12: The ability to combine outstanding creative design with technological development to improve the quality of the built environment and meet social, technological, and environmental challenges.			1	1			1		1	
G13: Solve architectural problems with a wide range of complexity and variation throughout applying analytic critical and systemic thinking.			1				1		1	
G14: 14. Demonstrate understanding of cultural, historical and established architectural theories, philosophies and context.			1	1						1

- Student Competences

Student Competences	(NARS 2018) CBE															Graduate Attributes													
	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	B1	B2	B3	B4	B5	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10	G11	G12	G13	G14
A1	*															*	*											*	
A2		*															*				*	*						*	
A3			*																		*							*	*
A4				*																	*	*				*	*		
A5					*																*	*	*			*			*
A6						*												*		*				*	*	*			
A7							*											*	*	*				*	*				
A8								*										*	*	*				*	*				
A9									*								*			*		*			*		*	*	
A10										*						*						*	*						*
B1											*					*										*	*	*	*
B2												*									*					*	*	*	
B3													*								*	*					*		
B4														*						*						*	*		
B5															*			*		*					*				

Student Competences	Teaching & Learning Methods																		Assessment Methods												
	Lecture	Tutorials	r-based I	Design Studio	n-based L	t-based L	active Lea	Presentation	Case Study	Report	operative Lea	Brain Storm	Projects	Simulation	Discussion	al-based L	Self Learning	Modeling	Oral Test	Mid-term	Quizzes	Reports	Observation	Discussions	Projects	Mini Projects	Assignments	Presentations	Modeling	Portofolio	Final Exam
A1	*	*			*										*				*	*	*	*	*	*	*		*				*
A2			*																*					*	*	*	*				
A3	*	*		*		*		*	*					*		*			*	*	*	*		*	*	*	*	*			*
A4	*	*			*															*	*		*	*	*		*				*
A5							*		*	*							*	*	*			*	*	*	*	*	*	*	*	*	*
A6	*	*				*					*								*	*	*			*	*	*	*	*			*
A7					*	*			*		*			*			*		*			*		*	*	*	*	*	*		
A8	*	*							*	*			*				*		*	*			*	*	*	*	*	*	*		*
A9			*	*	*		*		*	*			*			*			*		*	*	*	*	*	*	*	*			
A10								*	*						*				*			*		*	*	*		*	*		
B1	*			*	*	*	*	*	*		*		*	*			*		*	*	*	*	*	*	*		*	*	*	*	*
B2		*	*	*	*	*	*	*		*	*	*							*				*	*		*		*	*	*	*
B3	*			*	*	*		*				*	*	*					*				*	*		*	*	*	*		*
B4		*	*	*		*				*					*	*	*		*	*	*	*	*			*	*				
B5	*																*		*	*	*		*			*	*				*

Student Competences	Program Learning Outcomes														
	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PLO 11	PLO 12	PLO 13	PLO 14	PLO 15
A1	*														
A2		*													
A3			*												
A4				*											
A5					*										
A6						*									
A7							*								
A8								*							
A9									*						
A10										*					
B1											*				
B2												*			
B3													*		
B4														*	
B5															*

– Program Courses (Compulsory & Electives)

Year	Code	Course Title	A1/PLO1	A2/PLO2	A3/PLO3	A4/PLO4	A5/PLO5	A6/PLO6	A7/PLO7	A8/PLO8	A9/PLO9	A10/PLO10	B1/PLO11	B2/PLO12	B3/PLO13	B4/PLO14	B5/PLO15	PO1	PO2	PO3	PO4	PO5	PO6	PO7
Level 0	BES 011	Mathematics I	1	1														1	1					
	BES 012	Mathematics II	1	1														1	1					
	BES 021	Mechanics I	1	1														1						
	BES 022	Mechanics II	1	1														1						
	BES 031	Physics 1	1	1														1						
	BES 032	Physics 2	1	1														1						
	BES 041	General Chemistry	1	1														1						
	MEC 012	Production Engineering				1		1													1		1	
	UHS 103	Societal Issue					1		1		1									1	1			
	MEC 014	Computer Aided Drafting				1				1											1	1		
	MEC 011	Engineering Graphics					1			1											1	1		
	ELE 042	Computer Programming Fundamentals						1				1									1			
	UHS 101	Foreign Language					1			1		1									1			
	UHS 102	Information and Communication Technology				1						1											1	
Level 1	ARC 101	Architecture Design 1									1		1	1				1						1
	ARC 102	Architecture Design 2									1		1	1				1					1	1
	ARC 111	Introduction to Building Technology						1	1						1				1	1	1			
	ARC 112	Building Construction 1				1									1				1			1		
	ARC 131	Theory of Architecture 1				1							1								1	1	1	
	ARC 132	History of Architecture 1				1					1		1								1	1	1	1
	CIV 123	Structure Analysis	1												1			1	1		1			
	CIV 143	Construction Survey			1										1			1			1			
	ARC 103	Visual Design									1	1	1								1	1	1	1
	ARC 104	Perspective and Sciography									1	1									1	1		1
	BES 141	Pollution & Industrial Safety				1															1		1	
	ARC 152	Environmental Control & Design			1										1					1	1		1	
	ARC 142	Computer Applications 1				1				1			1								1			1
	FTR 103	Field Training I							1			1												
Level 2	ARC 201	Architecture Design 3									1		1	1				1					1	1
	ARC 202	Architecture Design 4									1		1	1				1					1	1
	ARC 211	Building Construction 2				1									1				1			1		
	ARC 212	Working Drawing 1				1									1				1					
	ARC 231	Theory of Architecture 2				1							1								1	1	1	1
	ARC 232	History of Architecture 2				1				1			1								1	1	1	1
	ARC 222	Introduction to Housing						1					1	1							1		1	1
	ARC 214	Profession Practice & Building Legislation					1									1	1				1		1	1
	ARC 213	Technical Installation					1										1					1		
	ARC 252	Smart Buildings Design													1					1	1		1	
	ARC 221	Introduction to Urban Planning									1		1	1						1			1	
	ARC 241	Computer Applications 2				1					1		1								1			1
	CIV 259	Design of RC Structures		1											1			1	1		1			
	CIV 229	Design of Steel Structures		1											1			1	1		1			
	FTR 203	Field Training II							1			1												
Level 3	ARC 361	Senior Design Project-1			1		1		1				1	1				1	1		1		1	1
	ARC 362	Senior Design Project-2			1		1		1				1	1				1	1		1		1	1
	ARC 311	Working Drawing 2													1	1	1	1			1	1		
	ARC 312	Working Drawing 3													1	1	1	1			1	1		
	ARC 334	Theory of Architecture 3				1							1								1	1	1	1
	ARC 313	Quantities & Specifications						1							1	1		1			1			
	ARC 321	Introduction to Urban Design											1	1									1	1
	CIV 339	Soil Mechanics & Foundations		1											1						1	1		
	ARC XXX*	Elective 1			1			1	1					1										
	ARC XXX**	Elective 2		1									1											
	ARC XXX***	Elective 3						1	1					1										
	UHS 104	Professional Ethics				1															1		1	
	UHS XXX	Humanities - Elective 1					1					1												
	UHS XXX	Humanities - Elective 2					1					1												
Level 4	ARC 421	Introduction to Landscape Architecture									1		1	1				1						1
	CIV 401	Construction Engineering & Management													1	1	1				1		1	
	ARC XXX*	Elective 4			1			1	1				1											
	ARC XXX**	Elective 5		1									1											
	ARC XXX***	Elective 6						1	1						1									
	UHS XXX	Humanities - Elective 3					1					1												
			8	12	6	7	15	7	9	9	8	14	20	12	17	5	6							

- Program Courses (Compulsory & Electives)

Year	Code	Course Title	Total	Lect.	Lab.	Tut.	Sum	Humanities and Social Sciences	Mathematics and Basic Sciences	Basic Engineering Sciences	Applied Engineering and Design	Computer Applications and ICT	Projects and Practice	Discretionary	University Requirements	Faculty University	Program Requirements
Level 0	BES 011	Mathematics I	3	2	0	2	4		3								*
	BES 012	Mathematics II	3	2	0	2	4		3								*
	BES 021	Mechanics I	3	2	0	2	4		3								*
	BES 022	Mechanics II	3	2	0	2	4		3								*
	BES 031	Physics 1	3	2	2	1	5		3								*
	BES 032	Physics 2	3	2	2	1	5		3								*
	BES 041	General Chemistry	4	3	2	1	6		4								*
	MEC 012	Production Engineering	2	1	3	0	4		2								*
	UHS 103	Societal Issue	2	2	0	0	2	2									*
	MEC 014	Computer Aided Drafting	2	1	2	0	3		2								*
	MEC 011	Engineering Graphics	2	0	0	4	4		2								*
	ELE 042	Computer Programming Fundamentals	2	0	2	2	4		2								*
	UHS 101	Foreign Language	2	2	0	0	2	2							*		
	UHS 102	Information and Communication Technology	2	2	0	0	2	2							*		
Level 1	ARC 101	Architecture Design 1	3	1	0	4	5				1	1		1		*	
	ARC 102	Architecture Design 2	3	1	0	4	5				1	1		1		*	
	ARC 111	Introduction to Building Technology	3	2	0	3	5				1	2				*	
	ARC 112	Building Construction 1	3	2	0	3	5				1	2				*	
	ARC 131	Theory of Architecture 1	2	2	0	1	3				2					*	
	ARC 132	History of Architecture 1	2	2	0	1	3	1			1					*	
	CIV 123	Structure Analysis	3	2	0	2	4			3						*	
	CIV 143	Construction Survey	3	2	2	0	4			3						*	
	ARC 103	Visual Design	3	2	0	2	4					3				*	
	ARC 104	Perspective and Sciography	2	1	0	2	3				1	2				*	
	BES 141	Pollution & Industrial Safety	2	2	1	0	3		2						*		
	ARC 152	Environmental Control & Design	2	2	0	1	3				1	1				*	
	ARC 142	Computer Applications 1	3	2	2	0	4						3			*	
	FTR 103	Field Training I	0	0	10	15	25										
Level 2	ARC 201	Architecture Design 3	3	1	0	4	5				1	1		1		*	
	ARC 202	Architecture Design 4	3	1	0	4	5				1	1		1		*	
	ARC 211	Building Construction 2	3	2	0	3	5				1	1		1		*	
	ARC 212	Working Drawing 1	3	1	0	4	5				1	1		1		*	
	ARC 231	Theory of Architecture 2	2	2	0	1	3				2					*	
	ARC 232	History of Architecture 2	2	2	0	1	3				2					*	
	ARC 222	Introduction to Housing	3	2	0	2	4				1	1		1		*	
	ARC 214	Profession Practice & Building Legislation	2	2	0	1	3				2					*	
	ARC 213	Technical Installation	3	2	0	2	4				1	2				*	
	ARC 252	Smart Buildings Design	2	2	0	1	3				1	1		1		*	
	ARC 221	Introduction to Urban Planning	3	2	0	2	4	1			1	1				*	
	ARC 241	Computer Applications 2	3	2	2	0	4						3			*	
	CIV 259	Design of RC Structures	2	2	0	1	3			2						*	
	CIV 229	Design of Steel Structures	2	2	0	1	3			2						*	
	FTR 203	Field Training II	0	0	10	15	25										
Level 3	ARC 361	Senior Design Project-1	2	1	0	3	4				1	1				*	
	ARC 362	Senior Design Project-2	4	2	0	4	6				1	1	1	1		*	
	ARC 311	Working Drawing 2	3	1	0	4	5				1	1	1			*	
	ARC 312	Working Drawing 3	3	1	0	4	5				1	1	1			*	
	ARC 334	Theory of Architecture 3	2	2	0	1	3				2					*	
	ARC 313	Quantities & Specifications	3	2	0	2	4					3				*	
	ARC 321	Introduction to Urban Design	3	2	0	2	4				1	1		1		*	
	CIV 339	Soil Mechanics & Foundations	3	2	2	0	4			3						*	
	ARC XXX*	Elective 1	3	2	0	2	4				1			2		*	
	ARC XXX**	Elective 2	3	2	2	0	4					1		2		*	
	ARC XXX***	Elective 3	3	2	0	2	4					1		2		*	
	UHS 104	Professional Ethics	2	2	0	0	2	2							*		
	UHS XXX	Humanities - Elective 1	2	2	0	0	2	2							*		
	UHS XXX	Humanities - Elective 2	2	2	0	0	2	2							*		
Level 4	ARC 421	Introduction to Landscape Architecture	3	2	0	2	4				1	1				*	
	CIV 401	Construction Engineering & Management	2	2	0	1	3			2						*	
	ARC XXX*	Elective 4	3	2	0	2	4				1			2		*	
	ARC XXX**	Elective 5	3	2	0	2	4					1		2		*	
	ARC XXX***	Elective 6	3	2	0	2	4					1		2		*	
	UHS XXX	Humanities - Elective 3	2	2	0	0	2	2							*		

		Total (H)	160					16	32	33	35	18	13	13
		% (H)						10%	20%	21%	22%	11%	8%	8%
		Ref. (%)						9-12%	20-26%	20-23%	20-22%	9-11%	8-10%	6-8%

(Teaching & Learning Methods columns: Lecture, Tutorials, Computer-based Instruction, Design Studio, Problem-based Learning, Project-based Learning, Interactive Learning, Presentations, Case Study, Report, Co-operative Learning, Brain Storming, Projects, Simulation, Discussion, Practical-based Learning, Self Learning, Modeling. Assessment Methods columns: Oral Test, Mid-term, Quizzes, Reports, Observation, Discussions, Projects, Mini Projects, Assignments, Presentations, Modeling, Portfolio, Practical Exam, Final Exam — marked with asterisks per course.)

- Assessment Methods VS Teaching & Learning Methods

Assessment Methods			Teaching and Learning Methods																		
			Lecture	Tutorials	Computer-based Instruction	Design Studio	Problem-based Learning	Project-based Learning	Interactive Learning	Presentations	Case Study	Report	Co-operative Learning	Brain Storming	Projects	Simulation	Discussion	Practical-based Learning	Self Learning	Modeling
Formative Assessment	Tests	Oral Test						*		*	*	*			*		*	*	*	
		Mid- term	*	*																
		Experimental			*													*		
		Quizzes	*	*																
	Reports									*		*					*		*	
	Observation						*		*				*	*						
	Discussions		*	*		*	*	*		*	*	*		*	*		*			*
	Projects	Projects				*	*		*	*	*	*	*		*	*	*	*	*	*
		Mini Projects				*		*	*		*		*		*	*	*	*		*
	Assignments			*	*	*	*													*
	Presentations							*		*	*	*			*					*
Summative Assessment	Final Exam		*	*																