INSTITUT TEKNOLOGI SEPULUH NOPEMBER
FACULTY OF CIVIL, PLANNING, AND GEO ENGINEERING

PROGRAM	**DEPARTMENT OF ARCHITECTURE**
DEGREE	**UNDERGRADUATE (S1)**

CURRICULUM SYLLABUS
2018 – 2023

INSTITUT TEKNOLOGI SEPULUH NOPEMBER
FACULTY OF CIVIL, PLANNING, AND GEO ENGINEERING

PROGRAM	**|**	**DEPARTMENT OF ARCHITECTURE**
DEGREE	**|**	**UNDERGRADUATE (S1)**

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FACULTY OF
CIVIL, PLANNING, AND GEO ENGINEERING

PROGRAM	**DEPARTMENT OF ARCHITECTURE**
DEGREE	**UNDERGRADUATE (S1)**

EXPECTED LEARNING OUTCOMES (ELO)

1	Devoted to One All Mighty God and capable of maintaining religiosity and showing respect the value of humanity
2	Capable of participating and contributing to environmental sustainability, quality of society, nationalism, citizenship and civilization which are based on law and the national fundamental principles of Indonesia (Pancasila)
3	Capable of showing respect on academic ethic, norm and value, responsibility, independence, perseverance, value of entrepreneurship and teamwork
4	Capable of implementing scientific, creative, and design thinking, and conducting original architectural studies and design in the form of design project and/or research's report.
5	Capable of demonstrating qualified and measurable works, conducting self-evaluation and supervision, and establishing network in the national and international levels.
6	Capable of mastering principles of architectural design and design method.
7	Capable of mastering principles of building science and technology, landscape, urban planning and design, housing & settlement and ecology that put reference on local context.
8	Capable of mastering architectural communication and presentation techniques.
9	Capable of mastering theoretical concepts of architecture, architectural design, building structural system and services.
10	Capable of making concept of architectural design that integrates the study on local environment and behavior, technical aspects and architectural values
11	Capable of independently designing a research-based architecture, and producing creative, contextual and theoretically valid architectural works
12	Capable of communicatively presenting architectural thoughts and design in the form of oral presentation, writing, manual and digital graphic works and models
13	Capable of utilizing design knowledge within the scope of building construction and supervision

COURSE LIST OF BACHELOR PROGRAM

No.	Course Code	Course Name	Credit(s)
SEMESTER I			
1	DA184101	Basic Architectural Design 1	6
2	DA184102	Introduction to Architecture	3
3	UG18490x	Religion	2
4	UG184913	Civics	2
5	UG184914	English	2
6	SF184103	Physics	3
		Number of credits	**18**
SEMESTER II			
1	DA184201	Basic Architectural Design 2	6
2	DA184202	Basic of Building Structure and Construction	3
3	DW184201	Introduction to Built Environment	2
4	UG184911	Pancasila	2
5	UG184912	Indonesian	2
6	KM184151	Mathematics	3
		Number of credits	**18**
SEMESTER III			
1	DA184301	Architectural Design 1	6
2	DA184302	Architectural Design Pinciples 1	2
3	DA184303	Design Method and Research in Architecture	3
4	DA184304	Stucture and Construction in Architecture	3
5	DA184305	Introduction to Housing and Human Settlements	2
6	DA184306	Architectural Science and Technology	3
		Number of credits	**19**

No.	Course Code	Course Name	Credit(s)
SEMESTER IV			
1	DA184401	Architectural Design 2	6
2	DA184402	Architectural Design Pinciples 2	2
3	DA184403	Landscape Architecture	3
4	DA184404	Introduction to Urban Design	2
5	DA184405	Building Services	3
6	DA184406	Architectural Theory	3
		Number of credits	**19**
SEMESTER V			
1	DA184501	Architectural Design 3	6
2	DA184502	Architectural Design Pinciples 3	2
3	DA184503	Experimental Architecture	3
4	DA184504	Architectural Ecology	3
5	DA184505	Nusantara Architecture	3
6		*Elective I*	3
		Number of credits	**20**
SEMESTER VI			
1	DA184601	Architectural Design 4	6
2	DA184602	Architectural Design Pinciples 4	2
3	DA184603	History of Architecture	3
4	DA184604*	Sustainable Design	[3]
5		*Elective II*	3
6	UG184916	Concept of Technology	3
7	XXxxxxxx**	Enrichment Course	3
		Number of credits	**20**

No.	Course Code	Course Name	Credit(s)
SEMESTER VII			
1	DA184701	Architectural Design 5	6
2	DA184702	Architectural Design Pinciples 5	2
3	DA184703	Final Project Proposal	4
4	DA184704	Contemporary Architecture	3
5		*Elective III*	3
6	UG184915	Technopreneur	2
		Number of credits	**20**

SEMESTER VIII			
1	DA184801	Final Project	8
2	DA184802	Ethics and the Practice of Architecture	2
		Number of credits	**10**

*) Enrichment Course for the other department students

**) Taken in another department

LIST OF ELECTIVE COURSES

SEMESTER V

No.	Course Code	Course Name	Credit(s)
1	DA184506	Digital Architecture	3
2	DA184507	Architecture Engineering 1	3
3	DA184508	Open Space	3
4	DA184509	Architecture and Behavior	3
5	DA184510	Urban Design Theory	3
6	DA184511	Informal Housing	3
7	DA184512	Biophilic Architecture	3
8	DA184513	Climate and Geography of Nusantara Architecture	3
9	DA184514	Tectonics	3

SEMESTER VI

No.	Course Code	Course Name	Credit(s)
1	DA184605	Algorithmic Design	3
2	DA184606	BIM 1	3
3	DA184607	Innovative Landscape	3
4	DA184608	Architecture Engineering 2	3
5	DA184609	Urban Design Procedure	3
6	DA184610	Formal Housing	3
7	DA184611	Tropical Architecture	3
8	DA184612	Aesthetic of Nusantara Architecture	3
9	DA184613	Stylistics	3

SEMESTER VII

No.	Course Code	Course Name	Credit(s)
1	DA184705	Digital Fabrication	3
2	DA184706	BIM 2	3
3	DA184707	Internship	3
4	DA184708	Inclusive Design	3
5	DA184709	Human Aspects of Urban Form	3
6	DA184710	Slum Upgrading	3
7	DA184711	Forensic Architecture	3
8	DA184712	Stucture and Construction in Nusantara Architecture	3
9	DA184713	Appreciating Architecture	3

CURRICULUM STRUCTURE 2018-2023

DEPARTMENT OF ARCHITECTURE | FACULTY OF CIVIL, PLANNING, AND GEO ENGINEERING - ITS

UNDERGRADUATE PROGRAM

SEMESTER												CREDITS
	UNDERGRADUATE PHASE											
VIII					Final Project 8 DA184801		Ethics and the Practice of Architecture 2 DA184802					10
VII		Elective III 3		Contemporary Architecture 3 DA184704		Architectural Design 5 6 DA184701		Architectural Design Principles 5 2 DA184702		Final Project Proposal 4 DA184703	Technopreneurship 2 UG184915	20
VI		Sustainable Design 3 DA184604*		Elective II 3		History of Architecture 3 DA184603		Architectural Design 4 6 DA184601		Architectural Design Principles 4 2 DA184602		Enrichment Course 3		Concept of Technology 3 UG184916		20
V				Elective I 3		Nusantara Architecture 3 DA184505		Architectural Design 3 6 DA184501		Architectural Design Principles 3 2 DA184502		Experimental Architecture 3 DA184503		Architectural Ecology 3 DA184504		20
IV				Introduction to Urban Design 2 DA184404		Architectural Theory 3 DA184406		Architectural Design 2 6 DA184401		Architectural Design Principles 2 2 DA184402		Landscape Architecture 3 DA184403		Building Services 3 DA184405		19
III				Introduction to Housing and Human Settlements 2 DA184305		Design Method and Research in Architecture 3 DA184303		Architectural Design 1 6 DA184301		Architectural Design Principles 1 2 DA184302		Stucture and Construction in Architecture 3 DA184304		Architectural Science and Technology 3 DA184306		19
	PREPARATION PHASE															
II				Pancasila 2 UG184911		Indonesian 2 UG184912		Basic Architectural Design 2 6 DA184201		Basic of Building Structure and Construction 3 DA184202		Mathematics 3 KM184151		Introduction to Built Environment 2 DW184201		18
I				Religion 2 UG18490x		Civics 2 UG184913		Basic Architectural Design 1 6 DA184101		Introduction to Architecture 3 DA184102		Physics 3 SF184103		English 2 UG184914		18

*) ENRICHMENT COURSE FOR THE OTHER DEPARTEMENT STUDENT

ELECTIVE COURSE

CLUSTER [LABORATORY]	Architectural Design Cluster	Urban Design Cluster	Housing and Human Settlements Cluster	Architectural Science and Technology Cluster	Theory, History, and Criticism in Architecture Cluster
SEMESTER V [Elective I]	Digital Architecture 3 DA184506	Urban Design Theory 3 DA184510	Informal Housing 3 DA184511	Biophilic Architecture 3 DA184512	Climate and Geography of Nusantara Architecture 3 DA184513
	Architecture Engineering 1 3 DA184507				
	Architecture and Behavior 3 DA184509	Open Space 3 DA184508			Tectonics 3 DA184514
SEMESTER VI [Elective II]	Algorithmic Design 3 DA184605	Urban Design Procedure 3 DA184609	Formal Housing 3 DA184610	Tropical Architecture 3 DA184611	Aesthetic of Nusantara Architecture 3 DA184612
	Building Information Modeling 1 3 DA184606				
	Architecture Engineering 2 3 DA184608	Innovative Landscape 3 DA184607			Stylistics 3 DA184613
SEMESTER VII [Elective III]	Digital Fabrication 3 DA184705	Human Aspects of Urban Form 3 DA184709	Slum Upgrading 3 DA184710	Forensic Architecture 3 DA184711	Stucture and Construction in Nusantara Architecture 3 DA184712
	Building Information Modeling 2 3 DA184706				
	Internship 3 DA184707				Appreciating Architecture 3 DA184713
	Inclusive Architecture 3 DA184708				

COURSE CATEGORY AND EXPECTED LEARNING OUTCOMES (ELO)

National, ITS	ELO: 1,2,3,4,5

Basic Architectural Design	ELO: 3,4,5,6,7,9,10,11,12
Architectural Design Principles	ELO: 3,4,6,7,8,9,10,11,12
Architectural Design	ELO: 3,4,5,10,11,12
Final Project Proposal	ELO: 3,4,6,7,8,9
Final Project	ELO: 3,4,5,10,11,12

Introduction	ELO: 3,4,6,10
Basic	ELO: 3,4,6,7,10,12
Specific	ELO: 3,4,6,7,8,10,12
Electives	ELO: 2,3,4,6,7,8,10,12,13

DISTRIBUTION OF EXPECTED LEARNING OUTCOMES (ELO)

Semester	Course Code	Course Name	Credit(s)	Category		ELO DISTRIBUTION												
						Attitude			General Skills		Knowledge				Specific Skills			
				Scope	Compulsion	1	2	3	4	5	6	7	8	9	10	11	12	13
1	DA184101	Basic Architectural Design 1	6	Programme	Compulsory			1	1	1	1	1		1	1	1	1	
	DA184102	Introduction to Architecture	3	Programme	Compulsory			1	1		1				1			
	UG18490x	Religion	2	National	Compulsory	1	1	1	1						1			
	UG184913	Civics	2	National	Compulsory		1	1	1						1			
	UG184914	English	2	Institutional	Compulsory		1	1	1						1			
	SF184103	Physics	3	Basic Science	Compulsory			1	1						1			
2	DA184201	Basic Architectural Design 2	6	Programme	Compulsory			1	1	1	1	1		1	1	1	1	
	DA184202	Basic of Building Structure and Construction	3	Programme	Compulsory			1	1		1	1			1			
	DW184201	Introduction to Built Environment	2	Faculty	Compulsory			1	1		1				1			
	UG184911	Pancasila	2	National	Compulsory	1	1	1	1						1			
	UG184912	Indonesian	2	National	Compulsory		1	1	1						1			
	KM184151	Mathematics	3	Basic Science	Compulsory			1	1						1			

Semester	Course Code	Course Name	Credit(s)	Category		ELO DISTRIBUTION												
						Attitude			General Skills		Knowledge				Specific Skills			
				Scope	Compulsion	1	2	3	4	5	6	7	8	9	10	11	12	13
3	DA184301	Architectural Design 1	6	Programme	Compulsory			1	1		1	1			1			
	DA184302	Architectural Design Pinciples 1	2	Programme	Compulsory			1	1	1	1	1	1	1		1	1	
	DA184303	Design Method and Research in Architecture	3	Programme	Compulsory			1	1		1	1			1			
	DA184304	Stucture and Construction in Architecture	3	Programme	Compulsory			1	1		1	1	1		1			
	DA184305	Introduction to Housing and Human Settlements	2	Programme	Compulsory			1	1		1	1			1			
	DA184306	Architectural Science and Technology	3	Programme	Compulsory			1	1		1	1	1		1			
4	DA184401	Architectural Design 2	6	Programme	Compulsory			1	1	1					1	1	1	
	DA184402	Architectural Design Pinciples 2	2	Programme	Compulsory			1	1		1	1	1	1				
	DA184403	Landscape Architecture	3	Programme	Compulsory			1	1		1	1	1		1			
	DA184404	Introduction to Urban Design	2	Programme	Compulsory			1	1		1	1			1			
	DA184405	Building Services	3	Programme	Compulsory			1	1		1	1	1		1			
	DA184406	Architectural Theory	3	Programme	Compulsory			1	1		1	1	1		1			

Semester	Course Code	Course Name	Credit(s)	Category		ELO DISTRIBUTION												
						Attitude			General Skills		Knowledge				Specific Skills			
				Scope	Compulsion	1	2	3	4	5	6	7	8	9	10	11	12	13
5	DA184501	Architectural Design 3	6	Programme	Compulsory			1	1				1		1			
	DA184502	Architectural Design Pinciples 3	2	Programme	Compulsory			1	1		1	1	1	1				
	DA184503	Experimental Architecture	3	Programme	Compulsory			1	1		1	1	1		1			
	DA184504	Architectural Ecology	3	Programme	Compulsory			1	1		1	1	1		1			
	DA184505	Nusantara Architecture	3	Programme	Compulsory			1	1		1	1	1		1			
		Elective I	3															
6	DA184601	Architectural Design 4	6	Programme	Compulsory			1	1	1					1	1	1	
	DA184602	Architectural Design Pinciples 4	2	Programme	Compulsory			1	1		1	1	1	1				
	DA184603	History of Architecture	3	Programme	Compulsory			1	1		1	1	1		1			
	DA184604*	Sustainable Design	3	Enrichment	Compulsory			1	1		1		1		1			
		Elective II	3															
	UG184916	Concept of Technology	3	Institutional	Compulsory		1	1	1		1	1			1			
	XXxxxxxx**	Enrichment Course																

Semester	Course Code	Course Name	Credit(s)	Category		ELO DISTRIBUTION												
						Attitude			General Skills		Knowledge				Specific Skills			
				Scope	Compulsion	1	2	3	4	5	6	7	8	9	10	11	12	13
7	DA184701	Architectural Design 5	6	Programme	Compulsory			1	1	1					1	1	1	
	DA184702	Architectural Design Pinciples 5	2	Programme	Compulsory			1	1		1	1	1	1				
	DA184703	Final Project Proposal	4	Programme	Compulsory			1	1		1	1	1	1				
	DA184704	Contemporary Architecture	3	Programme	Compulsory			1	1		1	1			1			
		Elective III	3															
	UG184915	Technopreneur	2	Institutional	Compulsory		1	1	1		1	1	1		1			
8	DA184801	Final Project	8	Programme	Compulsory			1	1	1			1		1	1	1	
	DA184802	Ethics and the Practice of Architecture	2	Programme	Compulsory			1	1		1	1	1		1			1

Semester	Course Code	Course Name	Credit(s)	Category		ELO DISTRIBUTION												
						Attitude			General Skills		Knowledge				Specific Skills			
				Scope	Compulsion	1	2	3	4	5	6	7	8	9	10	11	12	13
5	DA184506	Digital Architecture	3	Programme	Elective		1	1	1		1	1	1		1		1	
	DA184507	Architecture Engineering 1	3	Programme	Elective		1	1	1		1	1	1		1		1	
	DA184508	Open Space	3	Programme	Elective		1	1	1		1	1	1		1		1	
	DA184509	Architecture and Behavior	3	Programme	Elective		1	1	1		1	1	1		1		1	
	DA184510	Urban Design Theory	3	Programme	Elective		1	1	1		1	1	1		1		1	
	DA184511	Informal Housing	3	Programme	Elective		1	1	1		1	1	1		1		1	
	DA184512	Biophilic Architecture	3	Programme	Elective		1	1	1		1	1	1		1		1	
	DA184513	Climate and Geography of Nusantara Architecture	3	Programme	Elective		1	1	1		1	1	1		1		1	
	DA184514	Tectonics	3	Programme	Elective		1	1	1		1	1	1		1		1	

Semester	Course Code	Course Name	Credit(s)	Category		ELO DISTRIBUTION												
						Attitude			General Skills		Knowledge				Specific Skills			
				Scope	Compulsion	1	2	3	4	5	6	7	8	9	10	11	12	13
6	DA184605	Algorithmic Design	3	Programme	Elective		1	1	1		1	1	1		1		1	
	DA184606	BIM 2	3	Programme	Elective		1	1	1		1	1	1		1		1	
	DA184607	Innovative Landscape	3	Programme	Elective		1	1	1		1	1	1		1		1	
	DA184608	Architecture Engineering 2	3	Programme	Elective		1	1	1		1	1	1		1		1	
	DA184609	Urban Design Procedure	3	Programme	Elective		1	1	1		1	1	1		1		1	
	DA184610	Formal Housing	3	Programme	Elective		1	1	1		1	1	1		1		1	
	DA184611	Tropical Architecture	3	Programme	Elective		1	1	1		1	1	1		1		1	
	DA184612	Aesthetic of Nusantara Architecture	3	Programme	Elective		1	1	1		1	1	1		1		1	
	DA184613	Stylistics	3	Programme	Elective		1	1	1		1	1	1		1		1	

Semester	Course Code	Course Name	Credit(s)	Category		ELO DISTRIBUTION												
						Attitude			General Skills		Knowledge				Specific Skills			
				Scope	Compulsion	1	2	3	4	5	6	7	8	9	10	11	12	13
7	DA184705	Digital Fabrication	3	Programme	Elective		1	1	1		1	1	1		1		1	
	DA184706	BIM 2	3	Programme	Elective		1	1	1		1	1	1		1		1	
	DA184707	Internship	3	Programme	Elective		1	1	1		1	1	1		1		1	1
	DA184708	Inclusive Design	3	Programme	Elective		1	1	1		1	1	1		1		1	
	DA184709	Human Aspects of Urban Form	3	Programme	Elective		1	1	1		1	1	1		1		1	
	DA184710	Slum Upgrading	3	Programme	Elective		1	1	1		1	1	1		1		1	
	DA184711	Forensic Architecture	3	Programme	Elective		1	1	1		1	1	1		1		1	
	DA184712	Stucture and Construction in Nusantara Architecture	3	Programme	Elective		1	1	1		1	1	1		1		1	
	DA184713	Appreciating Architecture	3	Programme	Elective		1	1	1		1	1	1		1		1	
		TOTAL COMPULSORY COURSES	**135**		**41**	**2**	**7**	**41**	**41**	**7**	**29**	**26**	**20**	**8**	**35**	**7**	**7**	**1**
						5 %	**17%**	**100%**	**100%**	**17%**	**71%**	**63%**	**49%**	**20%**	**85%**	**17%**	**17%**	**2%**
		TOTAL ELECTIVE COURSES	**81**		**27**	**0**	**27**	**27**	**27**	**0**	**27**	**27**	**27**	**0**	**27**	**0**	**27**	**1**
						0%	**100%**	**100%**	**100%**	**0%**	**100%**	**100%**	**100%**	**0%**	**100%**	**0%**	**100%**	**4%**

SEMESTER I

COURSE	Name	: Basic Architectural Design 1
	Code	: DA184101
	Credit(s)	: 6
	Semester	: I

DESCRIPTION

Basic Architecture Design course 1 aims to give students the ability to train sensitivity to represent form and space, to apply design elements and design principles through an attractive aesthetic composition, and to demonstrate design decision making through creative and attractive object.

SUBJECTS

1. 3D thinking: Construction of geometric shapes
2. Data collection and analysis: precedents in architecture
3. Data collection and analysis: Architectural drawing notation & communication
4. Design theory and method: Design brief & design problem
5. Think: Imagination; creative; innovative: iterative operations in a design
6. Team work collaboration: Exploration of design ideas
7. Verbal-graphic-digital communication: Plan-look-pot as a space investigation tool

REFERENCES

1. Ballantyne, A. (2002). *Architecture: A Very Short Introduction.* Oxford University Press. New York.
2. Frascari, M. (2011) *Eleven Exercises in The Art of Architectural Drawing: Slow Food for The Architect's Imagination.* Routledge. London and New York.
3. Haskett, J. (2002). *Design: A Very Short Introduction.* Oxford University Press. New York.
4. Lockard, W.K. (1982). *Design Drawing.* Crisp Publication, Inc. California.
5. Protzen, jean-Pierre, Harris, D.J. (2010.) *The Universe of Design: Horst Rittel's Theories of Design and Planning.* Routledge. New York.

COURSE	Name	: Introduction to Architecture
	Code	: DA184102
	Credit(s)	: 3
	Semester	: I

DESCRIPTION

This course provides (new) students an understanding that architecture is a form of science. Where the science is also based on theory. Provides knowledge of the relationship between the field of architecture and the field of design. Provides knowledge that architecture is always present in a context, so that the relationship between the two is separate knowledge that must be learned. The expected output is to develop the ability to use an outline of architectural understanding, as a basis for thinking, imagining, communicating and arranging values in architecture.

SUBJECTS

1. Introduction to architecture and its relation to the environment
2. Introduction to forms in architecture: Aesthetics and architectural anatomy
3. Introduction to functions in architecture
4. Introduction to meaning in architecture
5. Introduction to structure and construction

REFERENCES

1. Conway, Roenisch. (1987). *Understanding Architecture.* Routledge of Keegan. London.
2. O'Goerman, J.F. (1980). *The ABC of Architecture, University of Peninnsylvania Press.* Philadelphia.
3. Snyder, J., Catanese, A.J.(ed), 1979, *Introduction to Architecture.* Mc-Grahill. New York.
4. Melvin, J. (2018). *Understanding Architecture.* Herbert Press.
5. Rusmussen, S.E. (1975). *Experiencing Architecture.* The MIT Press. Cambride.

COURSE	Name	: Religion - Islamic Studies
	Code	: UG184901
	Credit(s)	: 2
	Semester	: I

DESCRIPTION

The Islamic Studies course discusses and explores the material with the substance of the human relationship with God to realize a generation of pious with the Qur'anic paradigm; human relations with human beings in order to integrate Faith, Islam and Ihsan; and human relations with the environment in order to earth of Islam to bring prosperity. Thus, the outcomes are the generation of religious, humanist, broad-minded and caring.

SUBJECTS

1. Building a Qur'an Paradigm
2. How People to believe in God
3. Integration of Faith, Islam and Ihsan
4. How Religion Guarantees Happiness
5. Grounding Islam in Indonesia
6. Islam Creates Unity in Diversity
7. Islam concerning Zakat and Tax
8. The Role and Function of the Mosque for the Welfare Society
9. Islam Faces the Challenges of Modernization
10. Contribution of Islam in the Development of World Civilization

REFERENCES

1. Dirjen Pembelajaran dan Kemahasiswaan Kemenristekdikti, *Pendidikan Agama Islam untuk Perguruan Tinggi,* Jakarta, Dirjen Belmawa, 2016.
2. Muhibbin, Zainul, dkk, *Pendidikan Agama Islam Membangun Karakter Madani*,Surabayaa, ITS Press, 2012.
3. Razaq, Nasruddin, *Dinnul Islam*, Bandung, Al-Ma,arif, 2005.
4. Iberani, Jamal Syarif dkk, *Mengenal Islam*, Jakarta: eL-Kahfi, 2003.
5. Imarah, Muhammad, *Islam dan Pluralitas Perbedaan dan Kemajemukan dalam Bingkai Persatuan*, Jakarta, Gema Insani, 1999.

COURSE		
	Name	**: Religion - Christian Studies**
	Code	**: UG184902**
	Credit(s)	: 2
	Semester	: I

DESCRIPTION

The Christian Studies course provides insights for students to develop a complete and strong personality based on Bible truth in a common life, and to apply science and technology responsibly supported by a correct understanding of the material of divinity, humanity, ethics, culture, law, science and technology and politics.

SUBJECTS

1. Understanding of religion, the Doctrine of God in the Bible, Human Nature, ethics from a Christian perspective, science technology and art from a Christian perspective, Law, harmony in religious life; Society and Human Rights, Culture as an expression of Faith and Politics in a Christian perspective.

REFERENCES

1. Daniael Nuhamara, dkk, 2016, "*Pendidikan Agama Kristen untuk Perguruan Tinggi Umum*", RISTEKDIKTI, Jakarta.
2. Hans Kung, 1999, "*Etika Global*", Pustaka Pelajar, Yogyakarta.
3. Henry C. Thiessen, 1995, "*Teologi Sistematika*", Gandum Mas, Malang.
4. Herman Bavinck, 2011, "*Dogmatika Reformed 1: Prolegomena*", Momentum, Surabaya.
5. Herman Bavinck, 2011, "*Dogmatika Reformed 2: Allah dan Penciptaan*", Momentum, Surabaya.
6. J. Verkuyl, 2002, "*Etika Kristen Bagian Umum*", BPK Gunung Mulia, Jakarta.
7. John M. Frame, 2004, "*Doktrin Pengetahuan Tentang Allah*", Literatur SAAT, Malang.
8. K. Bertens, 2011, "*Etika*", Gramedia, Jakarta.
9. Kenneth Richard Samples, 2015, "*Without a Doubt*", Literatur SAAT, Malang.
10. Millard J. Erickson, 1999, "*Teologi Kristen*", Gandum Mas, Malang.
11. Norman L. Geisler, 2015, "*Etika Kristen*", Literatur SAAT, Malang.

COURSE	Name	: Religion - Catholic Studies
	Code	: UG184903
	Credit(s)	: 2
	Semester	: I

DESCRIPTION

Students are able to explain the nature of human beings as religious beings who have quality faith and piety, are able to apply noble morality, and make Catholic teachings the foundation of thinking and behaving in work according to their fields of expertise, both in individual performance and teamwork in group work.

SUBJECTS

1. The Call for Human Life according to the Scriptures
2. Human Relations with Self, Others, Environment, and God
3. Faith is lived in plurality
4. The work of Jesus Christ and the Kingdom of God
5. A church that is popular in the community
6. Christian Ethics

REFERENCES

1. Kemenristekdikti. 2016. Pendidikan Agama Katolik Untuk Perguruan Tinggi. Jakarta: Dirjen Belmawa Kemenristekdikti
2. Konferensi WaliGereja Indonesia. Katekismus Gereja Katolik [cetakan 8]. Jakarta: KWI & Kanisius, 2013
3. Achmad, N. Pluralisme Agama, Kerukunan dalam Keragaman. Jakarta: Penerbit Buku Kompas, 2001.
4. Barbour, Ian G. Juru Bicara Tuhan antara Sains dan Agama. Bandung: Penerbit Mizan, 2000.
5. Griffin, David Ray. Tuhan dan Agama dalam Dunia Post Modern. Yogyakarta: Kanisius, 2005.
6. Ismartono, SJ, I. Kuliah Agama Katolik Di Perguruan Tinggi Umum. Jakarta: Obor, 1993.
7. Sugiarto. I. Bambang. Agama Menghadapi Jaman. Jakarta: APTIK, 1992.
8. Leahy Louis. Filsafat Ketuhanan Kontemporer. Yogyakarta: Kanisius & BPK Gunung Mulia, 1994.

COURSE	Name	: Religion - Hinduism Studies
	Code	: UG184904
	Credit(s)	: 2
	Semester	: I

DESCRIPTION

The subject of Hinduism Studies course discusses and explores the material with the substance of human relations with Hyang Widdhi (the Supreme God) for the improvement of faith and piety (Sraddha and bhakti); human relations with fellow human beings in developing humanist civilizations; and human relations with the environment in realizing prosperity (Jagadhita), so as to be able to form human beings Hindu and Indonesian humanists who are independent, responsible and have caring.

SUBJECTS

1. History of Hinduism
2. Brahmavidya / Hindu theology
3. Vedas
4. Humans in a Hindu perspective
5. Hindu ethics / morality
6. Religious arts
7. Harmony
8. Society

REFERENCES

1. Direktorat Jenderal Pembelajaran dan Kemahasiswaan, 2016, Pendidikan Agama Hindu untuk Perguruan Tinggi, Kemenristek Dikti RI
2. Singer, Wayan, 2012. Tattwa (Ajaran Ketuhanan Agama Hindu, Surabaya, Paramita
3. Tim Penyusun, 1997, Pendidikan Agama Hindu Untuk Perguruan Tinggi, Hanuman Sakti
4. Wiana, 1994, Bagaimana Hindu Menghayati Tuhan, Manikgeni .
5. Wiana, 1982, Niti Sastra, Ditjen Hindu dan Budha.
6. Titib, 1996, Veda Sabda Suci Pedoman Praktis Kehidupan, Paramita.
7. Pudja, 1997, Teologi Hindu, Mayasari

COURSE		
	Name	: Religion - Buddhism Studies
	Code	: UG181905
	Credit(s)	: 2
	Semester	: I

DESCRIPTION

The Buddhist Studies course Buddhism as one of the national mandatory courses is to understand and understand the concept of Divinity in Buddhism and the rules of morality to shape the morality of Graduates, applicable laws that will affect every life and society of Graduates, and can take advantage of advances in Science and Technology based on moralism in Buddhism.

SUBJECTS

1. Scripture Tipitaka/Tripitaka
2. Phylosophy and History meaning of Buddhism and human life.
3. The laws of Buddhism are Universal
4. Concept and meaning of KETUHANAN YANG MAHA ESA in Buddhism
5. Values of morality as based of human life (Sila)
6. Science and Technology in human life in Buddhism perspective
7. The Concept of Buddhist society and inter religious harmony
8. The Concept and Urgensy of culture and political dynamic of Buddhism in national context

REFERENCES

1. Pendidikan Agama Buddha untuk Perguruan Tinggi cetakan I
2. Kitab Suci Dhammapada
3. Perdebatan Raja Milinda (ringkasan Milinda Panha oleh Bhiku Pesala Sangha Theravada Indonesia.

COURSE		
	Name	**: Civics**
	Code	**: UG184913**
	Credit(s)	: 2
	Semester	: I

DESCRIPTION

The Civics course discusses and explores knowledge and learning experiences to increase understanding and awareness of nationalism and love of the homeland, democratic civilization, being Indonesian who have competitive, disciplined and active participation in building a peaceful life personality based on the Pancasila value system, and manifest themselves as good citizens to support the nation and state, democratic citizens.

SUBJECTS

1. The nature of citizenship education, the essence and urgency of national identity and National integration
2. Constitutional values and norms of the 1945 Constitution of the Republic of Indonesia and the constitutionality of statutory provisions under the Constitution
3. The rights and obligations of the state and citizens, the nature of Indonesian democratic instrumentation and praxis based on Pancasila and the 1945 Constitution, and the historical dynamics
4. Archipelago insight as conception and national collective view, urgency and challenges of national resilience and defence for Indonesia

REFERENCES

1. Kemenristekdikti. 2016. Modul Pendidikan Kewarganegaraan Untuk Perguruan Tinggi. Jakarta: Dirjen Belmawa Kemenristekdikti
2. Armaidy Armawi, Geostrategi Indonesia, Jakarta, Direktorat jenderal Pendidikan Tinggi, 2006
3. Azyumardi Azra, paradigma Baru Pendidikan Nasional dan Rekrontruksi dan Demokratisasi, Penerbit Kompas, Jakarta, 2002
4. Bahar, Dr. Saefrodin, "Konteks Kenegaraan, Hak Asasi Manusia, Pustaka Sinar Harapan, Jakarta, 2000.
5. Kaelan, Pendidikan Kewarganegaraan, UGM Press, Yogyakarta 2005.

COURSE	Name	: English
	Code	: UG184914
	Credit(s)	: 2
	Semester	: I

DESCRIPTION

In English course, students will learn about basic English-language concepts which include listening, speaking / presentation, reading and writing. In this course, students apply the basic concepts of the language to express their ideas and thoughts verbally and in writing in academic life related to science and technology.

SUBJECTS

1. Developing effective English sentence and paragraph
2. Oral academic communication.
3. Listening to various conversations and talks.
4. Reading for Understanding: strategies and application

REFERENCES

1. Hogue Ann, Oshima Alice, "Introduction to Academic Writing", Longman,1997
2. Johnston Susan S, Zukowski Jean/Faust, "Steps to Academic Reading," heinle, Canada, 2002
3. Mikulecky, Beatrice S, "Advanced Reading Power", Pearson Education, New York, 2007
4. Preiss Sherry, "NorthStar: Listening and Speaking," Pearson Education, New York 2009
5. Bonamy David, "Technical English," Pearson Education, New York, 2011

COURSE		
	Name	**: Physics**
	Code	**: SF184103**
	Credit(s)	: 3
	Semester	: I

DESCRIPTION

In Physics course, students will learn to understand the basic laws of physics, which include quantities and vectors, Newton's laws, force, balance of forces, stress, strain, work concepts, kinetic energy, potential energy, conservation of mechanical energy; Sound wave propagation, sound intensity, natural light, daylight, light reflection and refraction, thermometry, calorimetry, heat transfer in solids, liquids and gases, electric current, electric potential, electric power, through simple mathematical descriptions and introducing examples of the use of concepts .

SUBJECTS

1. Quantities and vectors
2. Newton's Laws and Force: Newton's Laws, force,
3. Statics: equilibrium of forces, stress, strain.
4. Work and energy: the concept of work, kinetic energy, potential energy, conservation of mechanical energy;
5. Sound: Sound wave propagation, Sound intensity.
6. Optics: Natural light, daylight, light reflection and refraction:
7. Heat: thermometry, calorimetry, heat transfer in solids, liquids and gases;
8. Electricity: electric current, electric potential, electric power,

REFERENCES

1. Douglas C. Giancoli, 'Physics for Scientists and Engineers , Pearson Education, 4th ed, London, 2014
2. Tim Dosen, "Diktat Fisika I", ”Soal-soal Fisika I", Fisika FMIPA-ITS
3. Tim Dosen, "Diktat Fisika II", ”Soal-soal Fisika II", Fisika FMIPA-ITS 4.
4. Yehuda Salu; ‘Physics for Architects’, Inficity Publishing, 2007
5. Tipler, PA,(ted. L Prasetio dan R.W.Adi), "Fisika : untuk Sains dan Teknik, Jilid 1", Erlangga, Jakarta, 1998

SEMESTER II

COURSE	Name	: Basic Architectural Design 2
	Code	: DA184201
	Credit(s)	: 6
	Semester	: II

DESCRIPTION

The Basic Architectural Design 2 is a core course in architectural education with a studio pattern which aims to be the basis for further architectural design studios, with the introduction of design processes, study of precedents, responding to land and practicing the ability to draw concepts and diagrams.

SUBJECTS

1. Understand Design Process, Critical thinking in identifying problems
2. Intro to Site Survey and Design Context, Design Standards and Reference, Spatial requirements, Related Theory to Design Task
3. Architectural Programming and Circulation, Architectural Element; Structural, Enclosure, Spatial
4. Responses to site conditions, Decision making; creative thinking, creativity techniques
5. Diagramming and Conceptual Sketching; bubble diagram, parti diagram, site response diagram, Orthographic and Paraline Drawing; isometric drawing

REFERENCES

1. Ching, Francis D.K. (2007). Architecture: Form, Space and Order; John Wiley & Sons 3rd Edition
2. Anderson, Jane (2011) Basics Architecture 03: Architectural Design
3. Yee, Rendow (2012) Architectural Drawing: A Visual Compendium of Types and Methods
4. Zell, Mo (2008) Architectural Drawing Course: Tools and Techniques for 2d & 3D Representation
5. Neufert, Ernst (2002) Neufert Architects' Data, Third Edition. Wiley-Blackwell

COURSE		
	Name	**: Basic of Building Structure and Construction**
	Code	**: DA184202**
	Credit(s)	: 3
	Semester	: II

DESCRIPTION

The Basic of Structure and Building Construction is a compulsory subject that aims at laying the basics of understanding the simple theoretical structure and construction of buildings and presenting detailed architectural drawings.

SUBJECTS

1. Structure and element system in simple buildings
2. Construction process and engineering drawing recognition
3. Presentation of simple detailed building drawings

REFERENCES

1. Frick, Heinz. (1980), Ilmu Konstruksi Bangunan 1, Jogjakarta: Kanisius
2. R. Sumadi. (1982), konstruksi bangunan gedung jilid 1&2,Bandung:
3. Wakita, Osamu A. (2011), The Profesional practice of architectural working drawings, London: Jhon Wiley and Son
4. Shaeffer, R.E. (2006), Elementary Structures for Architects and Builders 5th Edition (Book 5), Pearson
5. Mainstone, Rowland J.(2001), Development in Structural form,New York: Architectural press- Routledge

COURSE	Name	: Introduction to Built Environment
	Code	: DW184201
	Credit(s)	: 2
	Semester	: II

DESCRIPTION

The Introduction to the Built Environment course aims to provide students with an understanding that the Built Environment is a form of Science, which is also based on theory. Introduction to the Built Environment seeks to develop the ability to use an understanding of the Development Environment in general, as a basis for thinking, imagining, communicating and setting values in stimulating a work. Developing the ability to take notes, describe, criticize and present and communicate in written, visual and oral forms.

SUBJECTS

1. Definition of the design and planning of the built environment and related issues in the human and environmental dimensions
2. The built environment as part of the natural, natural and socio-cultural environment
3. Integration of various components of the built environment design and planning

REFERENCES

1. Wendy R.McClure & Tom J. Bartuska;" The Built Environment : A Colaborative Inquiry into Design and Planning ; John Wiley& Sons,Inc.; New Jersey, 2007
2. Victor Papanek; Design for Real World : Human ecology and Social Change; Thames& Hudson.
3. Bentley Alcock Murrain McGlynn Smith; Responsive environmets- A manual for designers ; The Architectural Press Lt; 1985
4. Ian L. Mcharg – terjemahan S.Gunadi; " Merancang Bersama Alam - judul asli : Design with Nature ;
5. Nia K.Pontoh&Iwan Kustiawan; " Pengantar Perencanaan Perkotaan ; Penerbit ITB

COURSE		
	Name	**: Pancasila**
	Code	**: UG184911**
	Credit(s)	: 2
	Semester	: II

DESCRIPTION

This course provides knowledge of *Pancasila*, understand and examine experiences related to application of *Pancasila* into human lives. It aims to equip students with capacities to understand *Pancasila* from multi-perspectives: *Pancasila* within Indonesia historical context, *Pancasila* as national ideology, *Pancasila* as national principle, *Pancasila* viewed from ethical and philosophical contexts and *Pancasila* as the basis of science, technology and art development. This topic is also designed to improve students' ethical behaviour and personality as well as grow and build nationalism values and sense of patriotism

SUBJECTS

1. The urgency of Pancasila in higher education, Pancasila and Indonesia history, Pancasila as the Indonesia national principle
2. Pancasila as national ideology, Pancasila as philosophy system
3. Pancasila as ethic system, Pancasila as the foundation of science, technology and art development

REFERENCES

1. Kemenristekdikti. 2016. Pendidikan Pancasila Untuk Perguruan Tinggi. Jakarta: Dirjen Belmawa Kemenristekdikti.
2. Ir. Sukarno, editor H Amin Arjoso, SH ."Tjamkan Pancasila Dasar Falsafah Negara", Jakarta, PenerbitPanitiaNasionalPeringatanLahirnyaPancasila 1 Juni 1945 – 1 Juni 1964.
3. Notonagoro. 1994. Pancasila Secara Ilmiah Populer. Jakarta: Bumi Aksara.
4. Oetojo Oesman dan Alfian (editor). 1991. Pancasila Sebagai Ideologi Dalam Berbagai Bidang Kehidupan Bermasyarakat, Berbangsa dan Bernegara. Jakarta: BP-7 Pusat.
5. Prawirohardjo, Soeroso, dkk., 1987, Pancasila sebagai Orientasi Pengembangan Ilmu, Yogyakarta: Badan Penerbit Kedaulatan Rakyat.

COURSE	Name	: Indonesian
	Code	: UG184912
	Credit(s)	: 2
	Semester	: II

DESCRIPTION

The course is one of the national compulsory courses. In this course, students are going to learn some instructional materials including (a) setting learning goals and how to achieve; (b) building positive attitudes, enthusiasm, and skills; (c) understanding reading and writing relationship; (d) investigating text analysis and text title; (e) making substantial content and language of the introduction; (f) making substantial content and language of the theoretical basis/references; (g) making substantial content and language of the results and discussions; (h) making substantial content and language of the conclusion and suggestion; and (i) Delivering scientific texts presentation and discussion. After completing the course, students will be able to write scientific text (proposal/article) with clear, objective, interesting, and proper manner.

SUBJECTS

1. The relationship between Indonesian academic reading and writing.
2. Research problem analysis and title
3. Language use in background, research problems,, Objectives, Significance, Method, Theoretical basis, References, Results and discussion, conclusion and suggestions in scientific texts.
4. Academic presentation

REFERENCES

1. Dirjen Pembelajaran dan Kemahasiswaan Kemenristekdikti, *Bahasa Indonesia untuk Perguruan Tinggi,* Jakarta, Dirjen Belmawa, 2016.
2. *Kamus Besar Bahasa Indonesia* (daring atau luring), Kemdikbud RI.
3. Hasan Alwi dkk. *Tata Bahasa Baku Bahasa Indonesia*. Edisi Ketiga., Balai Pustaka.

COURSE	Name	: Mathematics
	Code	: KM184151
	Credit(s)	: 3
	Semester	: II

DESCRIPTION

This course equips students with mathematical concepts, determinants and systems of linear equations, mathematical thinking concepts in solving engineering problems, modeling and others in engineering related to differential applications, integration techniques. Lecture material is more emphasized on the technique of solving real problems which can be formulated into the function of one independent variable. The course material includes: matrices and determinants, solving systems of linear equations, Eigenvalues and Eigenvectors, real number systems (real number sequences), basic polynomial, exponential and logarithmic functions and graphs, derivatives and their applications, integrals, sequences and series.

SUBJECTS

1. Matrix
2. Real Number System
3. Functions & Graphs
4. Simple modeling
5. Derivative
6. Derivative applications
7. Integral
8. Sequence and Series

REFERENCES

1. Tim Dosen Jurusan Matematika ITS, Buku Ajar Kalkulus I , Edisi ke-4 Jurusan Matematika ITS, 2012.
2. Anton, H. dkk, Calculus, 10-th edition, John Wiley & Sons, New York, 2012
3. Mathematics for Economics and Business, 8th Edition, Ian Jacques, Formerly of the University of Conventry, 2015
4. James Stewart , Calculus, ed.7, Brooks/cole-Cengage Learning, Canada, 2012

SEMESTER III

COURSE	Name	: Architectural Design 1
	Code	: DA184301
	Credit(s)	: 6
	Semester	: III

DESCRIPTION

The Architectural Design 1 is a compulsory course that aims to enable students to design the architectural objects in residential contexts based on research and communicating the design results in oral, written, manual and digital graphics with technology. computing.

SUBJECTS

1. Issues, context, criteria, and design concepts related to the principles of meeting the needs of clients and users
2. Formal, spatial, and technical concepts with the principle of problem-based solutions for user needs, environmental aspects and a humid tropical climate
3. Issues, context, criteria, and design concepts related to programs, organization and spatial analysis based on ergonomics, access, equity.
4. Architectural design based on regulations and environmental issues in an integrative and creative way
5. Architectural design results in the form of oral, written, graphic, and models

REFERENCES

1. Chandler, R,Clancy, Goody, J. Wooding Geofrey, Building Type Basics for Housing, John Wiley & Sons, USA, 2005
2. Lane, B.M. (2007), Housing and Dwelling - Perspective on Modern Domestic Architecture, New York : Routledge
3. Friedman, A. (2012), Fundamental of Sustainable Dwellings, Washington : Island Press
4. Plowright, P.D. (2014), Revealing Architectural Design : Methods, Framework and Tools, New York : Routledge
5. Neufert, E. (2002), Neufert Architects' Data, Third Edition, Wiley Blackwell

COURSE	Name	: Architectural Design Principles 1
	Code	: DA184302
	Credit(s)	: 2
	Semester	: III

DESCRIPTION

The Architectural Design Principles 1 is a compulsory course that aims to enable students to master the theory of methods, concepts and technical aspects in designing architectural objects in residential contexts based on research and communicating the design results in oral, written, manual and digital graphics with technology. computing.

SUBJECTS

1. Issues, context, criteria, and design concepts related to the principles of meeting the needs of clients and users
2. Formal, spatial, and technical concepts with the principle of problem-based solutions for user needs, environmental aspects and a humid tropical climate
3. Issues, context, criteria, and design concepts related to programs, organization and spatial analysis based on ergonomics, access, equity.
4. Architectural design based on regulations and environmental issues in an integrative and creative way
5. Architectural design results in the form of oral, written, graphic, and models

REFERENCES

1. Chandler, R,Clancy, Goody, J. Wooding Geofrey, Building Type Basics for Housing, John Wiley & Sons, USA, 2005
2. Lane, B.M. (2007), Housing and Dwelling - Perspective on Modern Domestic Architecture, New York : Routledge
3. Friedman, A. (2012), Fundamental of Sustainable Dwellings, Washington : Island Press
4. Plowright, P.D. (2014), Revealing Architectural Design : Methods, Framework and Tools, New York : Routledge
5. Neufert, E. (2002), Neufert Architects' Data, Third Edition, Wiley Blackwell

COURSE		
	Name	: **Design Method and Research in Architecture**
	Code	: **DA184303**
	Credit(s)	: 3
	Semester	: III

DESCRIPTION

The Architectural Design and Research Methods course aims to provide students with the ability to determine design METHODS that best suit the design context, the potential and existing limitations and to apply them to limited design problems.

SUBJECTS

1. Design Thinking
2. Design Process
3. Research Methods
4. Design Method

REFERENCES

1. Cross, Nigel (2006). Designerly Ways of Knowing. Springer. London.
2. Groat, Linda & Wang, David (2013). Architecture Research Method - Second Edition. John Wiley & Sons
3. Haskett, John (2002) Design: A Very Short Introduction. Oxford University Press. New York
4. Plowright, Phillip D. (2014). Revealing Architectural Design: Methods, Frameworks and Tools. Routledge. New York.
5. Design Methods Basics_Kari Jormakka_2014

COURSE		
	Name	**: Stucture and Construction in Architecture**
	Code	**: DA184304**
	Credit(s)	: 3
	Semester	: III

DESCRIPTION

The Architectural Structure and Construction course is a compulsory course in the field of architectural design which aims to find out the anatomy, structural systems and construction of tall and wide-spans and Search Results in architecture.

SUBJECTS

1. Structure Material Construction
2. Technical Process and Integration
3. Document Specification and Cost

REFERENCES

1. Cowan, Henry J. (1979) “Architectural Structures, An introduction to Struktural Mechanics’ Pitman, 1979
2. "Garrison, Philliph (2005), “Basic Structures for Engineers & Architects”, Oxford, London, 2005."
3. Place, Wayne. (2007) “Architectural Structures.” John Wiley & Sons, Inc, 2007.Finishes: Using MASTERSPEC to Evaluate, Select, and Specify Materials, New York: Wiley & Sons.
4. Sandaker, Bjorn Normann (1992);”The Structural Basic of Architecture.” New York.
5. Schueller, Wolfgang (1983). “Horizontal – Span Building Structures”. John Wily & sons.

COURSE	Name	: Introduction to Housing and Human Settlements
	Code	: DA184305
	Credit(s)	: 2
	Semester	: III

DESCRIPTION

Introduction to Housing and Settlement aims to give students the ability to understand and explain theories in housing and settlements in relation to the human, cultural, environmental and economic aspects in urban areas as well as the challenges of housing in the 21st century, innovatively and creatively.

SUBJECTS

1. Design Theory and Method (Housing Paradigm)
2. Codes, Standard, Regulation (Housing Classification)
3. Design Procedure Process (Housing Process)
4. Needs of Society, Clients, User (Housing Challenge)

REFERENCES

1. Barbara Miller Lane (2007), Housing and Dwelling: Perspective on Modern Domestic Architecture, Routledge, New York
2. Barbara Ward (1994) The Home of Man, Penguin Books England, London
3. Norma L. Newmark (1977), Self, Space and Shelter: an Introduction to Housing
4. John F. Turner (1972), Freedom to Build, McMillan Ltd, New York
5. Charles Abrams (1969), Housing in the Modern World

COURSE		
	Name	**: Architectural Science and Technology**
	Code	**: DA184306**
	Credit(s)	: 3
	Semester	: III

DESCRIPTION

The Architectural Science and Technology course is a compulsory subject that aims to lay the foundations for understanding the environmental control system (buildings and their surroundings) both passively and actively. This course also teaches architectural design strategies in the context of environmental control in low, medium, and high-rise buildings.

SUBJECTS

1. Concepts and principles of thermal environment control
2. Concepts and principles of luminous environment control
3. Concepts and principles of sonic environment control

REFERENCES

1. Lechner, N. (2008), Heating, Cooling, Lighting: Sustainable Design Methods for Architects 3rd Edition.
2. Pohl, Jens (2011), Building Science; Concepts and Application, Willey – Blackwell
3. Heerwagen, D., McDonald, J., and Steemers, K. (2004), Passive and Active Environmental Control; Informing the Schematic Designing of Buildings, New York: McGraw-Hill.
4. Mc Mullan, R. (2007), Environmental Science in Building, 6th edition, Palgrave, Mc Millan
5. Satwiko P., (2009), Fisika Bangunan, Penerbit Andi, Yogyakarta.

SEMESTER IV

COURSE		
	Name	: Architectural Design 2
	Code	: DA184401
	Credit(s)	: 6
	Semester	: IV

DESCRIPTION

The course of Architecture Design 2 aims to give students the ability to design research-based objects of architecture related to the topic of material technology, structure and utility in designing creatively and innovatively.

SUBJECTS

1. Structure and material construction
2. Building System
3. Innovative building technique
4. Process and integration
5. Rules, regulations and standards

REFERENCES

1. Francis DK Ching, Barry Onouye, Douglas Zuberbuhler (2014). Building Structures Illustrated, John Wiley & Son
2. Maarten Meijs, Ulrich Knaack, Tilman Klein, Marcel Bilow, Thomas Auer (2007). FACADES principles of Consctruction
3. Albert Ting, Pat So (1999). Intelligent Building Systems . City University of Hongkong
4. Angus J. Mac Donald (2001). Structure and Architecture. Architecture Press
5. Edward T. White, Diagramming Information for Architectural Design.

COURSE		
	Name	: Architectural Design Principles 2
	Code	: DA184402
	Credit(s)	: 2
	Semester	: IV

DESCRIPTION

Architectural Design Principles 2 aims to give students the ability to demonstrate research-based knowledge on architectural objects related to material technology topics, structures and utilities in designing creatively and innovatively.

SUBJECTS

1. Structure and material construction
2. Building System
3. Innovative building technique
4. Process and integration
5. Rules, regulations and standards

REFERENCES

1. Francis DK Ching, Barry Onouye, Douglas Zuberbuhler (2014). Building Structures Illustrated, John Wiley & Son
2. Maarten Meijs, Ulrich Knaack, Tilman Klein, Marcel Bilow, Thomas Auer (2007). FACADES principles of Consctruction
3. Albert Ting, Pat So (1999). Intelligent Building Systems . City University of Hongkong
4. Angus J. Mac Donald (2001). Structure and Architecture. Architecture Press
5. Edward T. White, Diagramming Information for Architectural Design.

COURSE	Name	: Landscape Architecture
	Code	: DA184403
	Credit(s)	: 3
	Semester	: IV

DESCRIPTION

Landscape architecture course aims to learn the theoretical concepts and principles of landscape architecture and design of landscape architecture that refers to the local context

SUBJECTS

1. The human habitat, climate , land, water, vegetation
2. Community planning
3. Landscape character, topography
4. Site planning, site development, site planting, site volume / space
5. Visible landscape, structure in the landscape

REFERENCES

1. Simmonds, John Ormsbee (2006), Landscape Architecture
2. Landscape Architecture: A Manual of Land Planning and Design by John Ormsbee Simonds
3. LaGro Jr, James.A (2008), Site sis. A Contextual Approach to sustainable Land Planning and Site Design
4. Van Ufelen (2011) Façade Greenery Contemporary Landscaping, Braun Publishing
5. 1000X Landscape Architecture (2010).Braun Publishing

COURSE		
	Name	: Introduction to Urban Design
	Code	: DA184404
	Credit(s)	: 2
	Semester	: IV

DESCRIPTION

The Introduction to Urban Design course is a course that can develop students' understanding of the relationship between urban design and architectural design, through the provision of material covering city design rules, their relationship with architecture and their application to urban planning based on criteria, regulations and city design strategies associated with architectural design needs.

SUBJECTS

1. The main aspect of urban design
2. Urban design criteria
3. Detailing the place

REFERENCES

1. Alpha, D. P. (2010). Where We Live: A GuideBookto Urban Design. UK, Solent Centre forArchitecture + Design
2. Llewelyn-Davies (2007). Urban Design Compendium. EnglishPartnerships, London.
3. DETR and CABE (2000). By Design: urban design in the planning system, towards better practice, Thomas TelfordPublishing.
4. Shirvani, H. (1985). The Urban Design Process. Van Nostrand Reinhold
5. Lynch, K. (1960). The Imageof The City. MIT Press, Massachusetts.

COURSE		
	Name	**: Building Services**
	Code	**: DA184405**
	Credit(s)	: 3
	Semester	: IV

DESCRIPTION

Building Services courses are a compulsory subject to teach concepts and principles and explain building utility systems, namely plumbing systems, waste, drainage, electricity and lightning protection, occupant safety and security, communication, vertical transportation and air conditioning systems for both low-rise buildings, medium and high and teaches the strategy for its application especially for low-rise buildings

SUBJECTS

1. Concept and scope of Building Utilities
2. System design and integration with structural and architectural systems
3. Technical regulations and standards and utility design provisions

REFERENCES

1. Grondzik, W.T. and Kwok , A.G. (2015), Mechanical and Electrical Equipment for Buildings, New Jersey: John Wiley & Sons, Inc.
2. Hall, F. dan Greeno, R. (2011), Building Services Handbook, Oxford: Elsevier Limited.
3. Nadel, B. A. (2004), Building Security, Handbook for Architectural Planning and Design, New York: McGraw Hill.
4. Lechner, N. (2015), Heating, Cooling, Lighting: Sustainable Design Methods for Architects, New Jersey: John Wiley & Sons, Inc.
5. Bachman, L.R. (2003), Integrated Buildings: The Systems Basis of Architecture, New Jersey: John Wiley & Sons, Inc

COURSE	Name	: Architectural Theory
	Code	: DA184406
	Credit(s)	: 3
	Semester	: IV

DESCRIPTION

The Architectural Theory course aims to develop an explicit understanding of architectural theory and its role as a media / tool to explain and analyze architectural works; implicitly as a media / tool in designing architecture through extracting existing theories in the world of architecture and through critical studies or analysis of architectural works written in the form of reports, presented and discussed in a class discussion.

SUBJECTS

1. Data collection; analysis
2. Team work; Collaboration
3. Design theory and methods

REFERENCES

1. Kruft, Hanno Walter (1994), A History of Architectural Theory – from Vitruvius to the Present, Princeton Architectural Press
2. Ballantyne, Andrew (2002), Architecture : A Very Short Introduction, Oxford University Press
3. Capon, David Smith (1999), Le Corbusier's Legacy: Principles of Twentieth-century Architectural Theory Arranged by Category, Volume 2, Architectural Theory, Wiley
4. Tschumi, Bernard + Cheng, Irene (2003): The State of Architecture at the Beginning of the 21st Century (Columbia Books of Architecture),Monacelli Pres
5. Nesbitt, Kate (1996),Theorizing a New Agenda for Architecture:An Anthology of Architectural Theory 1965 – 1995, 2nd Edition, Princeton Architectural Press.

SEMESTER V

COURSE		
	Name	: Architectural Design 3
	Code	: DA184501
	Credit(s)	: 6
	Semester	: V

DESCRIPTION

The Architecture Design 3 course focuces on research-based design of an architectural object related to the topic of system and environmental conservation by regionalism and contextualism method.

SUBJECTS

1. Framework: force-based framework, natural system aspects as force
2. Program / project: commercial building with a focus on energy-concious buildings; conserving energy
3. Exploring issues with ecology theory, green design, and sustainability
4. Context: design concept with environmental survey analysis for flat / contour ground related to respect to site concept; response to site design methods (regionalism; contextualism): physiological aspect; site and users respect

REFERENCES

1. Brenda, V., Robert, V. (1991) Green Architecture, Design for Sustainable. Future. London: Thames & Hudson.
2. Kubba, S. (2017) Handbook of Green Building Design and Construction: LEED, BREEAM, And Green Globes. Cambridge: Elsevier.
3. Minke, G. (2013) Building with Earth: Design and Technology of a Sustainable Architecture. Basel: Birkhauser.
4. Plowright, P. (2014). Revealing Architectural Design: Methods, Frameworks and Tools. New York: Routledge.
5. Schröpfer, T. (2016) Dense + Green: Innovative Building Types for Sustainable Urban Architecture. Basel: Birkhauser.

COURSE	Name	: Architectural Design Principles 3
	Code	: DA184502
	Credit(s)	: 2
	Semester	: V

DESCRIPTION

The Architectural Design Principle 3 course studies the research-based design principles of an architectural object related to the topic of systems and environmental conservation with the methods of regionalism and contextualism.

SUBJECTS

1. Framework: force-based framework, natural system aspects as force
2. Program / project: commercial building with a focus on energy-concious buildings; conserving energy
3. Context: design concept with environmental survey analysis for flat / contour ground related to respect to site concept; response to site design methods (regionalism; contextualism): physiological aspect; site & users respect

REFERENCES

1. Brenda, V., Robert, V. (1991) Green Architecture, Design for Sustainable. Future. London: Thames & Hudson.
2. Kubba, S. (2017) Handbook of Green Building Design and Construction: LEED, BREEAM, And Green Globes. Cambridge: Elsevier.
3. Minke, G. (2013) Building with Earth: Design and Technology of a Sustainable Architecture. Basel: Birkhauser.
4. Plowright, P. (2014). Revealing Architectural Design: Methods, Frameworks and Tools. New York: Routledge.
5. Schröpfer, T. (2016) Dense + Green: Innovative Building Types for Sustainable Urban Architecture. Basel: Birkhauser.

COURSE		
	Name	: Experimental Architecture
	Code	: DA184503
	Credit(s)	: 3
	Semester	: V

DESCRIPTION

Experimental architecture focuses on designing conceptual projects that uphold thinking and innovation as an appropriate medium for practicing these skills. Experimental architecture plays an active role in developing knowledge through exploration of critical thinking and creatively utilizing innovative design tools and methods, and realizing it in terms of form, architectural programs, materials, technology, construction methods, and other aspects of architecture. It is hoped that this will be able to answer the challenges of the practical world of architecture in the future as well as provide challenges to architectural science to continue to develop.

SUBJECTS

1. Brief history and background to experimental architecture
2. Process and method of experimental architectural design
3. Experimental architectural representation

REFERENCES

1. Cook, Peter; Experimental Architecure; PIE Books; 1970
2. Sadler, Simon; Archigram Architecture Without Architecture; The MIT Press; London, 2005
3. Alison, Jane; Future City; Experimentat and Utopia in Architecture; Thames and Hudson, 2006
4. Balmond, Cecil; Informal; Prestel; 2007
5. Balmer, Swisher; Diagramming the Big Idea; Roudledge, 2013

COURSE		
	Name	: Architectural Ecology
	Code	: DA184504
	Credit(s)	: 3
	Semester	: V

DESCRIPTION

Architecture Ecology Course is a partial course that aims to provide an understanding of the interrelationships between architectural environments with human users and with the wider environment, related to architectural technology (Green Architecture), and apply the understanding in the given task.

SUBJECTS

1. Basic Architectural Ecology
2. Pre Design Process in Ecology
3. Design Process in Ecology
4. Post Design Process in Ecology

REFERENCES

1. Brenda, V., Robert, V. (1991) Green Architecture, Design for Sustainable Future. London: Thames & Hudson.
2. Graham, P. (2003) Building Ecology: First Principles for A Sustainable Built Environment. Sidney: Blackwell Science.
3. Minke, G. (2013) Building with Earth: Design and Technology of a Sustainable Architecture. Basel: Birkhauser.
4. Ndubisi, F. O. (2014) The Ecological Design and Planning Reader. Washington DC: Island Press.
5. Williams, D.E. (2007) Sustainable Design: Ecology, Architecture, and Planning. New Jersey: John Wiley & Sons.

COURSE		
	Name	: Nusantara Architecture
	Code	: DA184505
	Credit(s)	: 3
	Semester	: V

DESCRIPTION

The Nusantara Architecture course aims to provide students with the ability to learn architectural and building knowledge, which includes architectural understanding in the context of Indonesian architecture. This course will discuss the fundamental features of Nusantara architecture on the one hand, the similarities and differences between regional architectures on the other (diversity in archipelago architecture) and their equivalence with pre-modern Western architecture. Here also introduced the difference between traditional architecture and archipelago architecture.

SUBJECTS

1. Definition of Archipelago Architecture, Dichotomy of Archipelago
2. Architecture and Western Architecture and Considerations of Context
3. Archipelago Architectural Structure and Construction
4. Diversity of Figure and Meaning of Archipelago Architecture Contemporary Nusantara architecture

REFERENCES

1. Prijotomo, J. (2018). Prijotomo Membenahi Arsitektur Nusantara. Surabaya: PT. Wastu Lanas Grafika.
2. Prijotomo, J. (2014). Eksplorasi Desain Arsitektur Nusantara. Jakarta: Prima Infosarana Media.
3. Schefold, R., Domenig, G. & J. M. Nas,P. (Ed.) (2004). Indonesian Houses: Tradition and Transformtion in Vernacular Architecture (Leiden Series on Indonesian Architecture). Leiden: KITLV Press.
4. Schefold, R. (2009) Indonesian Houses, Volume 2: Survey of Vernacular Architecture in Western Indonesia (Leiden Series on Indonesian Architecture). Leiden: KITLV Press.
5. John Miksic, J. & Tjahjono, G. (Ed.)(2003). Architecture (Indonesian Heritage, Vol. 6) (The Indonesian Heritage Series). Brooklyn, New York: Archipelago Press.

SEMESTER VI

COURSE		
	Name	: Architectural Design 4
	Code	: DA184601
	Credit(s)	: 6
	Semester	: VI

DESCRIPTION

The Architecture Design 4 course aims to give students ability in research-based design of an architectural object related to socio-cultural aspects topics, creatively and innovatively.

SUBJECTS

1. Framework: force-based framework, sociocultural system aspects as a force
2. Program / project: public building with a focus on socio-cultural environment
3. Exploration of issues with the theory of place, identity and narrative-architecture
4. Context: a design concept using a sociocultural survey analysis for the environment related to the concept of respect to value and identity; response to social-culture environment (regionalism; contextualism) design method: site and users respect

REFERENCES

1. Nigel Coates, Narrative Architecture. John Wiley & Sons Ltd, 2012.
2. Ian Bentley & Georgia B. Watson, Identity by Design. Elsevier, 2007.
3. Peter Cook, Drawing: The Motive Force of Architecture. John Wiley & Sons Ltd,
4. Sophia Psarra, Architecture & Narrative: The Formation of Space and Cultural Meaning. Routledge, 2009.
5. Meurs, Paul (2016),Heritage Based Design.TU-Delft.

COURSE		
	Name	: Architectural Design Principles 4
	Code	: DA184602
	Credit(s)	: 2
	Semester	: VI

DESCRIPTION

The Architectural Design Principles 4 course aims to give students ability to understand design concept and method, as well as technical aspects in a building comprehensively.

SUBJECTS

1. Framework: force-based framework process, socioculture aspect as force
2. Program / project: public building with a focus on sociocultural aspects
3. Context: design concept with environmental survey analysis for flat / contour ground related concept to respect to socioculture context; design methods respect to site and value (regionalism; contextualism): sociocultural aspect; site and users respect

REFERENCES

1. Nigel Coates, Narrative Architecture. John Wiley & Sons Ltd, 2012.
2. Ian Bentley & Georgia B. Watson, Identity by Design. Elsevier, 2007.
3. Peter Cook, Drawing: The Motive Force of Architecture. John Wiley & Sons Ltd,
4. Sophia Psarra, Architecture & Narrative: The Formation of Space and Cultural Meaning. Routledge, 2009.
5. Meurs, Paul (2016),Heritage Based Design.TU-Delft.

COURSE		
	Name	**: History of Architecture**
	Code	**: DA184603**
	Credit(s)	: 3
	Semester	: VI

DESCRIPTION

The History of Architecture course studies the history of architecture in synchronic and diachronic over time, architectural paradigm according to the spirit of the times, contextual architectural design (opportunity and timing) and the value / value of architectural history

SUBJECTS

1. History of World Architecture
2. History of European Classical Architecture
3. History of Classical Asian Architecture
4. History of Archipelago Architecture
5. History of pre-modern Dutch Indies architecture

REFERENCES

1. Sejarah Arsitektur: Sebuah Pengantar oleh Setiadi Soepandi, Penerbit Gramedia
2. A Global History of Architecture : Frank Ching 1995

COURSE	Name	: Sustainable Design
	Code	: DA184604
	Credit(s)	: 3
	Semester	: VI

DESCRIPTION

In general, the Sustainable Design concept is introduced as a response to the environmental destruction issues or environmental degradation framework. This course aims to provide an understanding of the importance of the sustainability concept in engineering design and construction, the study of principles, strategies, and elements in its implementation, as well as systems of measurement and sustainability assessment on the various scopes of engineering design.

SUBJECTS

1. Environment and environmental destruction
2. Sustainability Concept and Sustainable Design
3. Well being users
4. Occupant behavior in sustainability
5. Material and Production Process
6. Waste as a byproduct of the production and construction process
7. Treatment strategy
8. Operational energy and energy efficiency in the production and construction process
9. Assessment tool of sustainability in Indonesia, and the basic rules

REFERENCES

1. Bovill, Carl. 2015. Sustainability in Architecture and Urban Design. Routledge. New York
2. Yates, J. K. Castro-Lacouture, Daniel, 2016, Sustainability in Engineering Design and Construction Operation, Taylor & Francis Group, UK
3. Johnson, Anthony. Gibson, Andrew. 2014, Sustainability in Engineering Design An Undergraduate Text. Elsevier Ltd. London UK
4. Bergman, David, 2012, Sustanable Design – A Critical Guide, Princeton Architectural Press, New York
5. Vezzoli, Carlo. Manzini, Ezio. 2008. Design for Environmental Sustainability, Springer Verlag. London

COURSE	Name	: Concept of Technology
	Code	: UG184916
	Credit(s)	: 3
	Semester	: VI

DESCRIPTION

Concept of Technology course provides inspiration to students in developing insights into science, technology and innovation as well as the forms of their application in society and the environment. By utilizing ICT and involving the skills that each student has according to their scientific background creatively for the benefit of development in society and the environment.

SUBJECTS

1. Introduction and InformationTransformation
2. Logical Frame Work (Log Frame)
3. System Theory and Systemic Thinking
4. Concepts of Millennium Developments Goals (MDGs) and Sustainable Development Goals (SDGs)
5. Information and Communication Technology (ICT)
6. Community Service Program (KKN)

REFERENCES

1. Tim Pengembang Mata Kuliah Wawasan Teknologi dan Komunikasi Ilmiah , "Wawasan Teknologi & Komunikasi Ilmiah", ITS Press, SUrabaya, 2015.
2. Alfred Watkins and Michel Ehst, "Science, Technology and Innovation: Capacity Building for Sustainable Growth and Poverty Reduction", The International Bank for Reconstruction and Development, Washington DC, 2008.
3. Frieder Meyer Krahmer, "Innovation and Sustainable Development-Lesson for Innovation Policies, " A Springer-Verlag Company, Heidelberg, 1998.
4. Tim BPPT, "Naskah Akademik Buku Putih Penguatan Sistem Inovasi Nasional, " Deputi Bidang Pengkajian Kebjikan Teknologi-Bada Pengkajian dan Penerapan Teknologi (BPPT), Jakarta, 2011.
5. Tatyana P. Soubbotina, (2004), "Beyond Economic Growth An Introduction to Sustainable Developmant" The World Bank Washington, D. C.

SEMESTER VII

COURSE		
	Name	: Architectural Design 5
	Code	: DA184701
	Credit(s)	: 6
	Semester	: VII

DESCRIPTION

The Architectural Design 5 course is a compulsory studio-based course with the theme of experimental architecture which aims to train the ability to produce architectural designs in a speculative context that upholds thought and innovation through topics raised by the supervisor with an approach tailored to the specific field of laboratory expertise

SUBJECTS

1. Speculative context in architectural design
2. Architectural design based on data analysis and experimentation process
3. Exploration of representation media in architectural design
4. Architectural design through theoretical approaches and innovative design methods

REFERENCES

1. Cook, Peter; Experimental Architecure; PIE Books; 1970
2. Sadler, Simon; Archigram Architecture Without Architecture; The MIT Press; London, 2005
3. Alison, Jane; Future City; Experimentat and Utopia in Architecture; Thames and Hudson, 2006
4. Bono, Edward D; Lateral Thinking; Harper & Row, 1970
5. Groat, Wang; Architecture Research Method, Wiley, 2013

COURSE		
	Name	: Architectural Design Principles 5
	Code	: DA184702
	Credit(s)	: 2
	Semester	: VII

DESCRIPTION

The Architectural Design Principles 5 course is a compulsory studio-based principles course with the theme of experimental architecture which aims to train the ability to produce the principles of architectural designs in a speculative context that upholds thought and innovation through topics raised by the supervisor with an approach tailored to the specific field of laboratory expertise.

SUBJECTS

1. Innovative Design
2. Design by Research
3. Lateral Thinking
4. Experimental Representation

REFERENCES

1. Cook, Peter; Experimental Architecure; PIE Books; 1970
2. Sadler, Simon; Archigram Architecture Without Architecture; The MIT Press; London, 2005
3. Alison, Jane; Future City; Experimentat and Utopia in Architecture; Thames and Hudson, 2006
4. Bono, Edward D; Lateral Thinking; Harper & Row, 1970
5. Groat, Wang; Architecture Research Method, Wiley, 2013

COURSE		
	Name	**: Final Project Proposal**
	Code	**: DA184703**
	Credit(s)	: 4
	Semester	: VII

DESCRIPTION

The Final Project Proposal course studies problems related to architectural design in a certain context, design problems in architecture, and architectural design methods that are suitable for the preparation of the Final Project course.

SUBJECTS

1. Design precedent and architectural criticism: Selection of topics, design issues and problems, design thinking
2. Design theory and method: Design approaches and methods, programming, design concepts, area and building regulations
3. Design procedure process: Regional and building regulations

REFERENCES

1. De Bono, Edward. Lateral Thinking, Harper & Row Publisher, New York, 1970
2. Duberly, H. (2004), How Do You Design, A Compendium of Models, San Francisco: Duberly Design Office.
3. Lawson, B. (2005), How designer Think, The Design process Demystified, London; Routledge.
4. Jones, CJ. (1992), Design Methods, New York: John Wiley & Sons.
5. Jormakka, K. (2007), Basic Design Methods, Basel: Birkhauser Architecture

COURSE		
	Name	**: Contemporary Architecture**
	Code	**: DA184704**
	Credit(s)	: 2
	Semester	: VII

DESCRIPTION

Contemporary architecture is placed as a continuation of modern architecture in two specific attitudes. Post / neo-modern architecture as updating modern architecture, and post-modern architecture as correcting modern architecture. The style and characteristics of each architecture will be detailed, while the factors forming the architecture will be critically examined

SUBJECTS

1. Flashback to modern architecture
2. Introduction to the factors and challenges of post / neo modern and purna modern architecture
3. Contemporary architecture as updating (post / neomodern) and correction (purnamodern), on modern architecture
4. Basic rules and principles of post-modern and post-modern architecture
5. Recent developments in the postmodern and postmodern architecture
6. Type and history of contemporary architecture in indonesia

REFERENCES

1. Charles Jencks : The Language of Late Modern Architecture
2. Robert Venturi : Complexity and Contradiction in Architecture
3. Robert AM Stern : Modern Classicism

COURSE		
	Name	**: Technopreneurship**
	Code	**: UG184915**
	Credit(s)	: 2
	Semester	: VII

DESCRIPTION

This course provides students with understanding and skills to be able to identify and evaluate technology-based business opportunities in accordance with the student's area of expertise, as well as develop these business opportunities. This course combines the introduction of theory and hands-on experience in an integrated manner in developing business ideas and opportunities. In the end, students are expected to be able to pour business opportunities into an effective business plan.

SUBJECTS

1. Business and entrepreneurship concepts, entrepreneurial mindset and self-evaluation, creativity and identification of business opportunities, business models, analysis and evaluation of business opportunities, market analysis and planning, cost analysis and product pricing, team building and human resource planning, financial planning, capitalization, ethics & social responsibility, legal aspects and risk analysis, and business plan development

REFERENCES

1. Tim Pengembangan Technopreneurship ITS. (2015). Technopreneurship. Surabaya: ITS Press.
2. Barringer, B. R., & Ireland, R. D. (2010). Entrepreneurship: Successfully launching new ventures. Upper Saddle River, N.J: Prentice Hall.
3. International Labor Organization, Generate Your Business Idea
4. International Labor Organization, Memulai Bisnis
5. Osterwalder, A., Pigneur, Y., & Clark, T. (2010). Business model generation: A handbook for visionaries, game changers, and challengers. Hoboken, NJ: Wiley.
6. William, B. K., Sawyer, S. C., Berston, S., (2013). Business: A Practical Introduction. Upper Saddle River, N.J: Prentice Hall

SEMESTER VIII

COURSE		
	Name	: Final Project
	Code	: DA184801
	Credit(s)	: 8
	Semester	: VIII

DESCRIPTION

The Final Project course aims to provide students with the ability to design research-based architectural objects as well as to understand architectural knowledge and all its aspects in an integrative way.

SUBJECTS

1. Formulation Design issues and problems
2. Design method
3. Technical aspects and integration in design
4. Design exploration and iteration
5. Drawing and design communication standards

REFERENCES

1. Cross, Nigel. (2006), The Designerly Ways of Knowing. London: Springer
2. Duberly, H. (2004), How Do You Design, A Compendium of Models, San Francisco: Duberly Design Office.
3. Lawson, B. (2005), How designer Think, The Design process Demystified, London; Routledge.
4. Jones, CJ. (1992), Design Methods, New York: John Wiley & Sons.
5. Jormakka, K. (2007), Basic Design Methods, Basel: Birkhauser Architecture

COURSE		
	Name	: Ethics and the Practice of Architecture
	Code	: DA184802
	Credit(s)	: 2
	Semester	: VIII

DESCRIPTION

Ethics and the Practice of Architecture course is special courses that provide a deep understanding of ethics and norms in the fields of life in general, academics, engineering and architecture as a provision for living a profession and life in a society in accordance with prevailing ethics and norms.

SUBJECTS

1. Introduction to general ethics
2. Academic ethics
3. Engineering Ethics
4. Professional ethics (professional code of ethics), business and construction industry
5. Various issues about Ethics with case studies in the field of Architecture.
6. Professional ethics as the basis of life

REFERENCES

1. Martin & Schinzinger ; "Etika Rekayasa"
2. Frans Magnis Suseno; " Etika Dasar"
3. Landau, R., "Architecture, Ethic and the Person, in M. Pollak, The Education of the Architect", The MIT Press, CAmbridge, MA, 1992.
4. Murvin, H.L." The Architect's Resposibilities", Library of Congrss Catalogue Number 82-90109, 1982.
5. Omer Akin; "Ethic in Architectural Design", paper.

ELECTIVE COURSES

S E M E S T E R V

COURSE	Name	: Digital Architecture
	Code	: DA184506
	Credit(s)	: 3
	Semester	: V

DESCRIPTION

Digital Architecture is a theoretical course that discusses the role of computers in the development of design and architecture. Students will investigate the digital mode of visual communication as a representation of ideas. In architecture, images are used to understand, organize, map various data and information related to design concepts. The technique of presenting the image is not only a medium for problem-solving dialogue, but is able to become the aesthetic of the concept formation itself.

SUBJECTS

1. Digital imaging technology
2. Architectural geometry (domains of geometrical knowledge in architecture)
3. Architectural Design Transformation Tools

REFERENCES

1. Rease C, McWillims C, Barendse J.(2010). Form+Code in Design, Art, and Architecture. Princeton Architectural Press. New York.
2. Pottmann, Helmut. Asperl, Andreas. Hofer, Michael. Kilian, Axel. Bentley, Daril (2007).Architectural Geometry.1st edition. Bentley Institute Press.
3. Carpo, Mario. Lemerle, Frederique (2007) Perspective, Projections and Design : Technologies of Architectural Representation. Taylor & Francis Ltd. London, United Kingdom
4. Terzidis, Kostas (2016).Algorithmic Architecture. Architectural Press. Oxford, United Kingdom
5. Oxman, Rivka, Oxman, Robert (2014) Theories of the Digital in Architecture, Routledge, New York

COURSE	Name	: Architecture Engineering 1
	Code	: DA184507
	Credit(s)	: 3
	Semester	: V

DESCRIPTION

The Architectural Engineering course 1 is an elective course in the field of architectural design which aims to study the innovation of building envelope systems in architectural objects to be used as a basis in exploring architectural object planning ideas.

SUBJECTS

1. The principle of the structure and construction of the building envelope design in architectural objects
2. Variety of materials and their applications in building envelope design in architectural objects
3. Innovation of structure and construction of building envelopes in architectural objects
4. Integration of innovative structures and constructions in building envelopes

REFERENCES

1. Brookes, Alan J & Poole, Dominique; Innovation in Architecture, Spon Press, 2005
2. Oxman, Rivka, Oxman, Robert ; The New Structuralism; Architecture & Design; 2010
3. Moloney, Jules. (2011), Designing Kinetics for Architectural Facades State Change, New York: Routledge
4. Crosbie, Michael J. (2005), Curtain Walls, Recent Development by Cesar Pelli and Associates, Switzerland: Birkhauser
5. Knack, Ulrich. Klein, Tillman. Bilow, Marcel. Auer, Thomas. (2007), Facades Principles of Contruction, Birkhauser verlag: Basel

COURSE		
	Name	**: Open Space**
	Code	**: DA184508**
	Credit(s)	: 3
	Semester	: V

DESCRIPTION

The Open Space course is an elective course in the field of architectural design which aims to increase knowledge of the development of past outer space concepts, as well as the principles and concepts of contemporary outer space design.

SUBJECTS

1. The theoretical concept of open space design
2. Analysis of the characteristics of the outer space from the past to the present development
3. Prepare proposed concepts for the design of outdoor space in certain themes and areas

REFERENCES

1. Webb, M. (1990), The City Square, Thames and Hudson Ltd, London
2. Hakim, R & Sediadi E (2006), Komunikasi Grafis & Lansekap (Graphics and Landscape Communication).
3. Broto, C. (2010), Playground.
4. Gunadi, Sugeng (2002), Perencanaan Dan Perancangan Ruang Luar..
5. Hakim, Rustam (2003), Komponen Perancangan Arsitektur Lansekap. Bumi Aksara

COURSE	Name	: Architecture and Behavior
	Code	: DA184509
	Credit(s)	: 3
	Semester	: V

DESCRIPTION

Architecture and human behavior is a contemporary approach which places the values, needs and preferences of users at the forefront of the design process. Its purpose is to make the people feel more human, more alive, more fulfilled in design. This course will examine the social and behavioral factor in Architecture Design through critical thingking, discussions, and case studies around two questions: (1) how the nature relationship between human behavior and built environment, (2) how using behavioral science in the design process.

SUBJECTS

1. Basic knowledge of theoretical concepts of architecture and behavior, the influence of human behavior factors in architectural design principles
2. Theories of the basic relationship between behavior and environment in architectural design
3. The application design and analysis process in a small investigation in a particular context

REFERENCES

1. DAK Kopec (2012/2018) Environmental Psychology for Design. Fairchild Pubns
2. Lang, Jon, & Moleski, Walter. (2010). Functionalism Revisited: Architectural Theory and Practice and the Behavioral Sciences. Ashgate.
3. Hamilton,Kirk(2008),Evidence based design for multiple building types, John Wiley and Sons
4. Deasy and Lasswell (1990) Designing Places for People. A handbook on human behavior for architects, designers, and facility managers. Watson-Guptill Publication. New York
5. Lang, Jon. (1987). Creating Architecture Theory: The Role of the Behavioral Sciences in Environmental Design: Van Nostrand Reinhold Company.

COURSE	Name	: Urban Design Theory
	Code	: DA184510
	Credit(s)	: 3
	Semester	: V

DESCRIPTION

The Urban Design Theory course aims to provide students with an introduction and understanding of City Design theories related to the context and needs in architecture.

SUBJECTS

1. Place Making-Genius Loci
2. Elements and Principles of Design Composition
3. Urban Renewal Strategy

REFERENCES

1. Knox, Paul L (2011). Cities and Design. Routledge, New York.
2. Kaspirin, Ron (2011). Urban Design The Composition of Complexity, Routledge, New York.
3. Gehl, Jan (2010). Cities for People, Island Press Washington.
4. Lang, Jon (2005).Urban Design: A Typology Of Procedures And Products. Architectural Press, UK.
5. Shirvani, Hamid (2005). Urban Design Process, Van Nostrand Reinhold.
6. Trancik, Roger (1986). Finding Lost Space. John Wiley & Sons Inc., Paperback Edition.

COURSE	Name	: Informal Housing
	Code	: DA184511
	Credit(s)	: 3
	Semester	: V

DESCRIPTION

The Informal Housing course aims aims to provide students with an understanding of various housing and settlement theories as well as an analysis of their advantages and disadvantages in applying and solving problems, especially self-help housing and settlements in the context of developing countries.

SUBJECTS

1. Housing and Settlement Theory
2. Policies and programs related to self-help housing
3. Slum house criteria
4. Healthy house
5. Resources, institutions and perumkim funds for self-help housing

REFERENCES

1. Turner, John F.C. (1976). Housing by People. Great Britain Marion Boyars Publishers Ltd.
2. Silas, Johan. (2016). Housing Footprint. Surabaya
3. Cities Alliance, 2003. People and places: An overview of urban renewal, SA Cities Network, South Africa.
4. Hamdi, N., 2010. The placemaker's guide to building community, Earthscan, London.
5. UN HABITAT. (2009). Participatory Slum Upgrading and Prevention Programme.

COURSE		
	Name	: Biophilic Architecture
	Code	: DA184512
	Credit(s)	: 3
	Semester	: V

DESCRIPTION

Biophilic Architecture is a contemporary approach that understands the principles of climate responsive and biophilic architecture. This approach aims to achieve an architectural design that makes users have a connection with nature and feel better physical and psychological comfort in architecture. This course discusses the principles of climate-responsive and biophilic architecture, strategic and practical biophilic architecture with building scales, blocks, street, neighborhood, community and region Integration of biophilic architectural principles and strategies in architectural works in different climatic environments in architectural design through critical thinking. , discussions, and case studies.

SUBJECTS

1. Climate-responsive and biophilic architectural principles
2. Strategic and practical biophilic architecture with scales of buildings, blocks, streets, neighborhoods, communities and regions
3. Integration of the principles and strategies of biophilic architecture in architectural works in different climatic environments

REFERENCES

1. Kellert, Stephen R; Heerwagen, Judith; Mador, Martin L. (2008) Biophilic Design, John Wiley and Sons Inc
2. Beatly, Timothy (2011) Biophilic Cities, Island Press
3. Almusaed, Amjad (2011) Biophilic and Bioclomatic, Springer Verlag, London
4. Beatly, Timothy (2017) Handbook of Biophilic City Planning and Design, Island Press
5. Terrapin Bright Green (2014) 14 Pattern of Biophilic Design, Terrapin Bright Green Lcc

COURSE		
	Name	**: Climate and Geography of Nusantara Architecture**
	Code	**: DA184513**
	Credit(s)	: 3
	Semester	: V

DESCRIPTION

The Climate-Geography of Nusantara Architecture course aims to give the students the ability to understand and scientifically analize an architectural object of Nusantara architecture in climate and geography context.

SUBJECTS

1. Understanding and Considerations of Climate and Geography in Archipelago Architecture as Forming a Site in Archipelago Architecture
2. Utilization of Climate and Geography in structuring building clusters and yards
3. Climate and Geography and their effects on variations in the shape, material and scope of buildings

REFERENCES

1. Prijotomo, J. (2018). Prijotomo Membenahi Arsitektur Nusantara. Surabaya: PT. Wastu Lanas Grafika.
2. Prijotomo, J. (2014). Eksplorasi Desain Arsitektur Nusantara. Jakarta: Prima Infosarana Media.
3. Schefold, R., Domenig, G. & J. M. Nas,P. (Ed.) (2004). Indonesian Houses: Tradition and Transformtion in Vernacular Architecture (Leiden Series on Indonesian Architecture). Leiden: KITLV Press.
4. Schefold, R. (2009) Indonesian Houses, Volume 2: Survey of Vernacular Architecture in Western Indonesia (Leiden Series on Indonesian Architecture). Leiden: KITLV Press.
5. John Miksic, J. & Tjahjono, G. (Ed.)(2003). Architecture (Indonesian Heritage, Vol. 6) (The Indonesian Heritage Series). Brooklyn, New York: Archipelago Press

COURSE		
	Name	: Tectonics
	Code	: DA184514
	Credit(s)	: 3
	Semester	: V

DESCRIPTION

The Tectonic course aims to recognize the structure (construction) of basic building forms, to know what tectonics are and their touch on works (Architecture, Design, Craft), to have insight into tectonic knowledge in European, Asian, colonial (in Indonesia) architectural works and Nusantara.

SUBJECTS

1. Understanding Tectonics; Aesthetics and Construction (a touch of the art of construction technology); Expressions (findings) of ideas and natural studies (drawing of natural objects)
2. Study of the tectonic formation process (tools, materials, skills) in the practice of several materials.
3. Process of certain design materials or design drawings of "something" given the tectonic idea; Field studies and examining architectural works, craftmanship

REFERENCES

1. Prijotomo, J. (2014). *Eksplorasi Desain Arsitektur Nusantara*. Jakarta: Prima Infosarana Media.
2. Schwartz, C. (2016). *Introducing Architectural Tectonics: Exploring the Intersection of Design and Construction.* Routledge.
3. Foged, I.W., Hvejsel, M.F. (2018). *Reader: Tectonics in Architecture.* Aalborg University Press.
4. Frampton, K., Cava, J. (2001). *Studies in Tectonic Culture: The Poetics of Construction in Nineteenth and Twentieth Century Architecture.* he MIT Press; Reprint edition.
5. Hurol. Y. (2016). *The Tectonics of Structural Systems, An Architectural Approach.* Routledge.

ELECTIVE COURSES

S E M E S T E R VI

COURSE		
	Name	: Algorithmic Design
	Code	: DA184605
	Credit(s)	: 3
	Semester	: VI

DESCRIPTION

Algorithmic Design course developts the the concept of using logic in algorithmic architectural design, parametric principles in the design process, and logical concepts in architecture with parametric design

SUBJECTS

1. Algorithmic design concepts and paradigms via parametric
2. Parametric digital modeling using non-physical simulations
3. Parametric digital modeling using physical simulation

REFERENCES

1. Terzidis, Kostas (2006), Algorithmic Architecture, edisi ke-1, Architectural Press, Burlington, USA.
2. Bachman, David (2017) Grasshopper: Visual Scripting for Rhinoceros 3D. 1st ed. Industrial Press, Inc. USA.
3. Menges, Achim . Ahlquist, Sean (2011) AD Reader: Computational Design Thinking. John Wiley & Sons Ltd. UK
4. Terzidis, Kostas (2003) Expressive Form: A Conceptual Approach to Computational Design, Spon Press, New York
5. Pottmann, Helmut. Asperl, Andreas. Hofer, Michael. Kilian, Axel. Bentley, Daril (2007) Architectural Geometry.1st edition. Bentley Institute Press.

COURSE		
	Name	: Building Information Modeling (BIM) 1
	Code	: DA184606
	Credit(s)	: 3
	Semester	: VI

DESCRIPTION

The BIM 1 course is an elective course in the field of architectural design which aims to provide the ability to understand the concept and use of BIM, master and be able to practically apply BIM in the integrated design process in the case of a building with a total of 2 floors.

SUBJECTS

1. Concept and scope of Building Information Modeling
2. BIM framework
3. Utilization of models to support an efficient design process
4. BIM in 3D and 5D is simple for tender document creation

REFERENCES

1. Francis DK Ching, Building Construction Illustrated, Willey, 2014
2. Eastman Chuck (2011) BIM Handbook, A Guide to Building Information Modelling for Owners, Managers, Designer and Contractor, John Wiley & Sons Ltd
3. Krygiel, Eddy , cs (2008) Green BIM: Successful Sustainable Design with Building Information Modeling ,Wiley Publishing, Inc.
4. Holzer, Dominique (2015) The BIM Manager Handbook : : Guidance for Professionals in Architecture, Engineering, and Construction Best Practice BIM, John Wiley & Sons Ltd.
5. Manual Reference Autodesk REVIT 2017

COURSE		
	Name	: Innovative Landscape
	Code	: DA184607
	Credit(s)	: 3
	Semester	: VI

DESCRIPTION

The Innovative Landscape course is an elective course in the field of architectural design that aims to increase knowledge of landscape and outdoor architecture as well as case studies of the latest innovative Landscape architectural works

SUBJECTS

1. Introduction / Principles of Innovative Landscape Architecture
2. Outdoor innovative in today's developments
3. Proposed portfolio of innovative Landscape Architecture Design Concepts

REFERENCES

1. Thoren, Roxi (2014). Landscapes of Change: Innovative Designs for Reinvented Sites.
2. Mc Leod, V. (2008), Detail in Contemporary Landscape Architecture. Laurence King Publishing Ltd.
3. Spens, Michael (2003). Modern Landscape. Phaidon
4. Nicholin, P. and Repishti (2003). Dictionary of Today's Landscape Designers. Skira, Italy.
5. A Concise Guide to Safe Practices For Vertical Greenery

COURSE		
	Name	: Architecture Engineering 2
	Code	: DA184608
	Credit(s)	: 3
	Semester	: VI

DESCRIPTION

Architecture Engineering 2 course is an elective course in the field of architectural design which aims to study structural and construction innovation in architectural objects to be used as a basis in exploring architectural object planning ideas.

SUBJECTS

1. The principle of structure and construction in architectural objects
2. Variety of materials and their application to architectural objects
3. Structural and construction innovations in architectural objects
4. Integration of innovative structures and constructions in architectural objects

REFERENCES

1. Balmond, Cecil; Informal; Prestel; 2007
2. Ulrich Knaack, Tillmann Klein, Marcel Bilow, Thomas Auer; Facades, Principles of Construction; Birkhauser; Germany 2007
3. Herzog, Thomas, Knipper, Roland Lang, Werner; Facade Construction Manual; Birkhauser; Germany 2004
4. Aksamija, Ajla, Perkins+Will; Sustainable Facades; John Wiley & Sons; New Jersey, 2013
5. Larson, Magali Sarfatti; Behind the Postmodern Facade, University of California Press; London, 1993

COURSE	Name	: Urban Design Procedure
	Code	: DA184609
	Credit(s)	: 3
	Semester	: VI

DESCRIPTION

The Urban Design Procedures course is an elective subject that is expected to develop students' abilities in understanding typology and products and applying urban problem searches and applying basic methodologies in urban design so as to solve some of the latest urban design issues that must be considered from the results of the evaluation of design results. city before, and apply it in an evaluation task through identification in certain areas in the city so that they can choose solutions to problems based on issues and contexts that occur.

SUBJECTS

1. Introduction: Typology of urban design processes / procedures
2. Introduction: Types of urban design projects / products
3. Designing the problem: Identifying problems (goals & objectives)
4. Designing the problem: How to find and describe the problem
5. Designing the problem: Observation tools
6. Designing the solution: Analysis tools
7. Designing the solution: Synthesis
8. Designing the solution: Generating Alternatives
9. Urban design representation

REFERENCES

1. Lang, J. (2005). Urban Design: A Typology of Procedures and Products. Oxford, Elsevier
2. Moughtin,C et al (1999). Urban design: method and techniques. Oxford, Architectural Press.
3. Shirvani, H. (1986). Urban Design Process. NY,van Nostrand Reinhold Company.
4. Urban Design Associates (2003); Urban Design Handbook: Techniques and Working Methods
5. Alexandros Washburn (2013), The Nature of Urban Design, Island press, Lond

COURSE		
	Name	**: Formal Housing**
	Code	**: DA184610**
	Credit(s)	: 3
	Semester	: VI

DESCRIPTION

Formal Housing course aims to provide students with the ability to program, plan and build a formal housing and real estate environment on a small scale with an economic, technological and eco-friendly approach to the socio-cultural context of the user.

SUBJECTS

1. Formal housing and the issues that develop in it
2. Housing policies and regulations
3. Formal Housing Programming needs
4. housing planning

REFERENCES

1. McLean, A. Gary W. Eldred, Investing in Real Estate, 5th Edition , 2005
2. Gary W. Eldred Andrew James McLean, Investing in Real Estate, 5th Edition, 2005
3. David F. Windish, Practical Guide to Real Estate Taxation (Fifth Edition) (Practical Guides), 2008
4. Denise DiPasquale and William C. Wheaton, Urban Economics and Real Estate Markets, 1995
5. Michael P. Watson and Jennifer Hawkins, The "Highest and Best" Real Estate Investment!, 2008

COURSE	Name	: Tropical Architecture
	Code	: DA184611
	Credit(s)	: 3
	Semester	: VI

DESCRIPTION

The Tropical Architecture course studies the buildings' behavior as an architectural medium in the tropics, with the focus of the discussion emphasized on the location of Indonesia. Tropical architecture will address the mindset and tropical life, the basic principles of Architecture Design in the tropics, and how the buildings' response to the climate.

SUBJECTS

1. Tropical environment, mindset, and living
2. Tropical design paradigm
3. Climate and comfort
4. Cimatic analysis and design: Thermal, ventilation, and lighting strategy
5. Working with climate: sun, wind, and light
6. Working with material and Technology

REFERENCES

1. Bay, J-H, Ong, B.L. (2006). Tropical Sustainable Architecture, Social and Environmental Dimensions. Oxford: Architectural Press.
2. Chang, J-H. (2016). A Genealogy of Tropical Architecture: Colonial Networks, Nature and Technoscience (Architext) 1st Edition. New York: Routledge.
3. de Reus, M. (2011). Tropical Experience: Architecture + Design. ORO Edition.
4. Lauber, W. (2005). Tropical Architecture; Sustainable dan Humane Building in Africa, Latin-America and South-East Asia, Munich: Prestel.
5. Tzonis, A., Lefaivre, L., Stagno, B. (2001). Tropical Architecture: Critical Regionalism in the Age of Globalization. Academy Press.

COURSE		
	Name	: Aesthetic of Nusantara Architecture
	Code	: DA184612
	Credit(s)	: 3
	Semester	: VI

DESCRIPTION

The Aesthetic of Nusantara Architecture course aims to provide a re-awareness that Architecture is a part of visual aesthetic works that have elements, principles, materials, meanings and functions, studies of prehistoric architectural aesthetics, classical European-Modern (Post-Purna), aesthetic studies of Archipelago Architecture, between culture and spiritual. Making tectonic studies reports on paper writing and presentations in groups / individually on selected objects (+ making banners) (E) Experiments of various forms of materials, 'drawing hunting', Sculpture-Architecture and philosophy of form)

SUBJECTS

1. Architectural aesthetics and other art aesthetics in comparison
2. Study of scientific writings 'in line' with other people's work, study of citations from books, journals or proceedings (including theses, theses to dissertations which are sources of scientific writing)
3. The idea of architectural works of famous architects is a study of architectural aesthetics.
4. Shape experimentation (mockups and hunting drawings)

REFERENCES

1. FDK.Ching (...) Bentuk ,Ruang dan Susunannya,
2. FDK.Ching (...) Menggambar,
3. Gerhard Gollwitzer (...) Menggambar
4. Mangunwijaya (...) Wastu Chitra
5. Prijotomo (2008) pasang Surut Arsitektur Indonesia

COURSE		
	Name	**: Stylistics**
	Code	**: DA184613**
	Credit(s)	: 3
	Semester	: VI

DESCRIPTION

Ability to identify canons and rules of western and Asian architecture through architecture object identification; and to develop ability to apply stylistic meaning in general, as foundation to think, to imagine, to communicate and to evaluate architecture, written in a report, presented and discussed in a class.

SUBJECTS

1. Understanding style in Architecture
2. Role and Potential style
3. Style and tectonic
4. Architectural styles in the Western country, Asianand Indonesia
5. Style cases in the Western coutries, Asia and Indonesia

REFERENCES

1. Fletcher, Sir Banister, History of Architecture in a Comparative Method, 1996
2. Gerlenter, M., Sources of Architectural Form, 1995
3. Klassen W., Architecture and Philosophy, 1990
4. Stern, Robert A.M., Modern Classicis
5. Krier, R., Architectural Composition, 1988

ELECTIVE COURSES

S E M E S T E R VII

COURSE		
	Name	: Digital Fabrication
	Code	: DA184705
	Credit(s)	: 3
	Semester	: VII

DESCRIPTION

The Digital Fabrication course focuses on developing the ability to integrate analog and digital techniques in the design process to produce physical concepts from three-dimensional diagrams, scale models, or prototypes.

SUBJECTS

1. Digital fabrication concept
2. Principles of digital fabrication
3. Digital fabrication strategy

REFERENCES

1. Helmut Pottmann , Andreas Asperl, Michael Hofer, Axel Kilian (2007) Architectural Geometry, Bentley Institute Press
2. Dunn, N (2012). Digital Fabrication in Architecture. Laurence King Publishing. China.
3. Iwamoto, L (2009).Digital Fabrications : Architectural and Material Techniques. 1st ed. Princeton Architectural Press. China
4. Kolarevic, B (2009). Architecture in the digital age: design and manufacturing.Taylor & Francis e-Library.
5. Bachman, D (2017) Grasshopper: Visual Scripting for Rhino. 1st ed. Industrial Press. Inc. USA.

COURSE	Name	: Building Information Modeling (BIM) 2
	Code	: DA184706
	Credit(s)	: 3
	Semester	: VII

DESCRIPTION

The BIM 2 course is an elective course in the field of architectural design which aims to provide students with the ability to understand important issues related to BIM technology, master and be able to apply practically advanced BIM technology in the integrated planning process, carry out simulations of the construction (construction) stage, and building management and can provide and control the information contained in the model and predict problems in the case of buildings with a total of 2 to 5 floors.

SUBJECTS

1. Concept and Scope of the BIM System in the development stage
2. Collaboration in the Construction Industry
3. Production and Management of the BIM Model
4. Production and Distribution of the BIM Model

REFERENCES

1. Eastman Chuck (2011) BIM Handbook, A Guide to Building Information Modelling for Owners, Managers, Designer and Contractor, John Wiley & Sons Ltd
2. Krygiel, Eddy (2008) Green BIM: Successful Sustainable Design with Building Information Modeling ,Wiley Publishing, Inc.
3. Holzer, Dominique (2015) The BIM Manager Handbook : : Guidance for Professionals in Architecture, Engineering, and Construction Best Practice BIM, John Wiley & Sons Ltd.

COURSE		
	Name	**: Internship**
	Code	**: DA184707**
	Credit(s)	: 3
	Semester	: VII

DESCRIPTION

The Internship course is a means of developing student abilities in the application of knowledge in the architectural field and related fields of science (construction, planning, architectural scientific works, industry & manufacturing, social, etc.) in the professional world with real life in the field and with the aim of:
- broaden students' knowledge and experience regarding the methods, technology and types of construction equipment, including technical characteristics and operating principles of construction equipment, as well as building system planning and calculation of equipment productivity as part of the construction activity process.
- able to learn the sensitivity to solve problems in the professional world, both related to architecture and related fields of science

SUBJECTS

1. Detailed Engineering Drawing
2. Planning and Construction Tender Documents.
3. Planning, Supervision and Construction Tender Methods
4. Construction Management

REFERENCES

1. A Guide to The Project Management Body Of Knowledge (PMBOK GUIDE) 4th Ed. Project Managemen Institute (PMI), 2008
2. Project Management : Experience and Knowledge Self Assessment Manual , Project Nmanagement Institute, 2000
3. Design and Build : Planning Through Development, Jeffre L Beard, Mc Graw Hill, 2004
4. Manajemen Proyek dari Konseptual Sampai Operasional, Imam Suharto, Erlangga 1997

COURSE		
	Name	**: Inclusive Design**
	Code	**: DA184708**
	Credit(s)	: 3
	Semester	: VII

DESCRIPTION

This course introduces the definition of inclusive design and the philosophy behind its concept to architectural design. Inclusive Design is design for all. A global movement that seeks to improve the usability of environments, products and systems for the widest range of people. Inclusive design is grounded in the democratic values of non-discrimination, equal opportunity and personal empowerment. The course also evaluates the theory and concept of inclusive design in Architecture, utilizes case studies and examples to examine the development its design concept through behavior and space; ergonomic in building design and community design service.

SUBJECTS

1. Basic knowledge of theoretical concepts of architecture and behavior, the influence of human behavior factors in architectural design principles
2. Theories of the basic relationship between behavior and environment in architectural design
3. The application design and analysis process in a small investigation in a particular context

REFERENCES

1. Maisel, Steinfeld, Basnak and Smitt (2017) Inclusive Design: Implementation and Evaluation (PocketArchitecture), Routledge, New York
2. Langdon, P.M., Lazar, J., Heylighen, A., & Dong, H. (2014). Inclusive Designing: Joining Usability, Accessibility, and Inclusion: Springer International Publishing.
3. Steinfeld, E., & Danford, G.S. (2013). Enabling Environments: Measuring the Impact of Environment on Disability and Rehabilitation: Springer US.
4. Burton, E., & Mitchell, L. (2006). Inclusive Urban Design: Streets for Life: Architectural Press.
5. Fletcher, Howard. (2006). The Principles of Inclusive Design. London: The Commission for Architecture and the Built Environment.

COURSE	Name	: Human Aspects of Urban Form
	Code	: DA184709
	Credit(s)	: 3
	Semester	: VII

DESCRIPTION

The Human Aspects of Urban Form is an elective course related to urban areas that will provide knowledge about culture, phenomena and urban development issues.

SUBJECTS

1. Understanding City Culture
2. Urban Development Phenomena and Issues

REFERENCES

1. Altman, I., & Low, S. M. (Eds.). (1992). Place attachment. New York: Plenum.
2. Rapoport (1977). Human Aspect of Urban Form: toward a Man_Environment Approach to Urban Form and Design: Pergamon Press, Oxford.
3. Tuan, Y.-F. (1974). Space and place: Humanistic perspective. Progress in Geography, 6, 233e246.
4. Giuliani, M. V. (2003). Theory of attachment and place attachment. In M. Bonnes, T. Lee, & M. Bonaiuto (Eds.), Psychological theories for environmental issues (pp. 137e170). Ashgate, Hants.

COURSE		
	Name	**: Slum Upgrading**
	Code	**: DA184710**
	Credit(s)	: 3
	Semester	: VII

DESCRIPTION

Slum Ugrading course aims to give students the ability to scientifically evaluate informal housing programs that have been implemented and to develop slum upgrading concept creatively and innovatively.

SUBJECTS

1. Housing principle
2. Authority in housing
3. Community empowerment and participation,
4. Residential resources
5. Sustainable Settlement

REFERENCES

1. Turner, John F.C. (1976). Housing by People. Great Britain Marion Boyars Publishers Ltd.
2. Silas, Johan. (2016). Housing Footprint. Surabaya
3. Cities Alliance, 2003. People and places: An overview of urban renewal, SA Cities Network, South Africa.
4. Hamdi, N., 2010. The placemaker's guide to building community, Earthscan, London.
5. UN HABITAT. (2009). Participatory Slum Upgrading and Prevention Programme.

COURSE		
	Name	: Forensic Architecture
	Code	: DA184711
	Credit(s)	: 3
	Semester	: VII

DESCRIPTION

Forensic Architecture courses are elective courses in architectural science and technology that aim to lay the basics of evaluating damage, inefficiency and failure of buildings to be used as the basis for planning repairs, maintenance or references for submitting insurance claims / legal cases.

SUBJECTS

1. Concept and scope of forensic architecture
2. Building technical regulations and standards
3. Building evaluation procedures
4. Basics of evaluation and investigation of site systems, architecture / finishing, building services / utilities

REFERENCES

1. Kubba, S.A.A (2008), Forensic Architecture, London: McGraw-Hill Companies. Icn.
2. Lechner, N. (2008), Heating, Cooling, Lighting: Sustainable Design Methods for Architects 3rd Edition.
3. Lechner, N. (2011), Plumbing, Electricity, Acoustic: Sustainable Design Methods for Architects 3rd Edition.
4. Jablonski, M. & Matsen, C. (2009), Architectural Finishes in the Built Environment, Archetype Books, …
5. ARCOM, The American Institute of Architects, Elena M. S. Garrison (2002) The Graphic Standards Guide to Architectural Finishes: Using MASTERSPEC to Evaluate, Select, and Specify Materials, New York: Wiley & Sons.

COURSE		
	Name	**: Stucture and Construction in Nusantara Architecture**
	Code	**: DA184712**
	Credit(s)	: 3
	Semester	: VII

DESCRIPTION

Stucture and Construction in Nusantara Architecture course is an elective course in the field of architectural development which aims to evaluate the structural and construction systems of Nusantara architectural buildings.

SUBJECTS

1. Identification of Nusantara and Western architectural construction and structural systems
2. The tectonic structure and construction of the Nusantara architecture
3. Differences in the structure and construction of the archipelago architecture on the structure and construction of western architecture
4. Possibility of developing archipelago structures with today's technology and materials

REFERENCES

1. Atlas arsitektur Indonesia oleh Nadia Purwestri, Nasruddin, Fider Tendiardi (2015)
2. Arsitektur Nusantara oleh Nuryanto (2015)
3. Arsitektur klasik Eropa oleh Yulianto Sumalyo (2014)
4. Atlas Grand Architecture du Monde
5. Basics Konstruksi Kayu oleh Ludwig Steiger diterjemahkan oleh Agus Tiono (2011)
6. Indonesian Heritage 6, Arsitektur oleh Haryati Soebadyo

COURSE	Name	: Appreciating Architecture
	Code	: DA184713
	Credit(s)	: 3
	Semester	: VII

DESCRIPTION

The Appreciating Architecture course aims to give students the ability to study material and do assignments as given in the Architectural Appreciation course according to the Architectural Appreciation course study materials, to do assignments properly and correctly according to the assignment sheet given.

SUBJECTS

1. Introduction to the difference of Artwork, Artwork and Architectural Works
2. The reading point of view, the value and substance of the work
3. Appreciation Rules and Visual Values of Form, Aesthetics - Tectonics, Spirituality, Meaning and Philosophy
4. Visual media appreciation in 2D and 3D forms as an enrichment for the quality of self-development

REFERENCES

1. Sturgis, Russell, The Appreciation of Architecture, Read Books, 2007
2. Rasmussen, Steen Eiler, Experiencing Architecture, MIT Press, 1964
3. Antoniades, Anthony C., Poetics of Architecture: Theory of Design, Van Nostrand Reinhold, 1990
4. Mitias, Michael H., Philosophy and Architecture, Rodopi, 1994
5. Wiseman, Carter, Writing Architecture: A Practical Guide to Clear Communication about the Built Environment, Trinity University Press, 2014