



Architectural department
Faculty of Engineering Benha
Benha University

ARCHITECTURE ENGINEERING PROGRAM

Architectural Department Program



Program specification – Bylaw 2023

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A- Basic Information

Program Title	Architectural Engineering Program
Program Type	<input checked="" type="checkbox"/> Single <input type="checkbox"/> Double <input type="checkbox"/> Multiple
Department responsible of program	Architectural Engineering
Program Coordinator	Prof. Dr. Zeinab Faisal
Quality Coordinator	DR Kamal Elgabalawy
Date of program Approval	2023
Program URL	arch.prog@beng.bu.edu.eg

B- Professional Information

1. Program Mission

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

2. Program Objectives

The objectives of the BSc in The Architectural Engineering Program are to enable its graduates to:

PO1. Apply a wide spectrum of fundamentals of the science and specialized skills with analytic, creativity and critical thinking to identify and solve architecture design problems in real life situation.

PO2. Prepare qualified innovative architects who can adhere to architectural engineering ethics and standards and work to develop the profession and the community and promote sustainability principles.

PO3. Work in and lead a heterogeneous team and display leadership qualities, business administration, and entrepreneurial skills.

PO4. Use techniques, skills, and modern engineering tools necessary for architectural engineering practice.

PO5. Master self-learning and life-long learning strategies to communicate effectively in academic/professional fields.

PO6. Strengthening students' ability to make decisions, solve problems, and develop architectural and urban solutions to develop and serve the local community.

PO7. Create architectural designs that satisfy both aesthetic, technical and meet building users' requirements.

3. Graduates Attributes

The graduate of the Architectural Engineering Program must be able to:

1. Master a wide spectrum of engineering knowledge and specialized skills and can apply acquired knowledge using theories and abstract thinking in real life situations.
2. Apply analytic critical and systemic thinking to identify, diagnose and solve engineering problems with a wide range of complexity and variation.
3. Behave professionally and adhere to engineering ethics and standards.
4. Work in and lead a heterogeneous team of professionals from different engineering specialties and assume responsibility for own and team performance.
5. Recognize his/her role in promoting the engineering field and contribute in the development of the profession and the community.
6. Value the importance of the environment, both physical and natural, and work to promote sustainability principles.
7. Use techniques, skills and modern engineering tools necessary for engineering practice.
8. Assume full responsibility for own learning and self-development, engage in lifelong learning and demonstrate the capacity to engage in post- graduate and research studies.
9. Communicate effectively using different modes, tools and languages with various audiences; to deal with academic/professional challenges in a critical and creative manner.
10. Demonstrate leadership qualities, business administration and entrepreneurial skills
11. Knowing the laws, legislations and requirements in the field of architecture and urbanism and how to apply them to meet local needs and global developments.
12. The ability to combine outstanding creative and innovative design with technological development to improve the quality of the built environment and meet social, technological, and environmental challenges.

13. Solve architectural problems with a wide range of complexity and variation throughout applying analytic critical and systemic thinking.
14. Demonstrate understanding of cultural, historical and established architectural theories, philosophies and context.

4. Program Learning Outcomes (PLO's)

The program courses fulfill the NARS 2018

Level A: The engineering graduate must be able to:

A1- PLO1: Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science and mathematics.

A2- PLO2: Develop and conduct appropriate experimentation and/or simulation, analyze and interpret data, assess and evaluate findings, and use statistical analyses and objective engineering judgment to draw conclusions.

A3- PLO3: Apply engineering design processes to produce cost-effective solutions that meet specified needs with consideration for global, cultural, social, economic, environmental, ethical and other aspects as appropriate to the discipline and within the principles and contexts of sustainable design and development.

A4- PLO4: Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues and risk management principles.

A5- PLO5: Practice research techniques and methods of investigation as an inherent part of learning.

A6- PLO6: Plan, supervise and monitor implementation of engineering projects, taking into consideration other trades requirements.

A7- PLO7: Function efficiently as an individual and as a member of multi-disciplinary and multi-cultural teams.

A8- PLO8: Communicate effectively – graphically, verbally and in writing – with a range of audiences using contemporary tools.

A9- PLO9: Use creative, innovative and flexible thinking and acquire entrepreneurial and leadership skills to anticipate and respond to new situations.

A10-PLO10: Acquire and apply new knowledge; and practice self, lifelong and other learning strategies.

Level B: Architecture Engineering Graduate must be able to:

B1- PLO11: Create architectural, urban and planning designs that satisfy both aesthetic and technical requirements, using adequate knowledge of: history and theory, related fine arts, local culture and heritage, technologies and human sciences.

B2- PLO12: Produce designs that meet building users' requirements through understanding the relationship between people and buildings, and between buildings and their environment; and the need to relate buildings and the spaces between them to human needs and scale.

B3- PLO13: Generate ecologically responsible, environmental conservation and rehabilitation designs; through understanding of: structural design, construction, technology and engineering problems associated with building designs.

B4- PLO14: Transform design concepts into buildings and integrate plans into overall planning within the constraints of: project financing, project management, cost control and methods of project delivery; while having adequate knowledge of industries, organizations, regulations and procedures involved.

B5- PLO15: Prepare design project briefs and documents, and understand the context of the architect in the construction industry, including the architect's role in the processes of bidding, procurement of architectural services and building production.

5. Program Academic Standards

Academic reference Standards of Architectural Engineering Program approved by department council on 18-9-2022 and faculty council on 11-10-2022

6. Reference Standards

National Academic reference Standards of 2018 which were issued by the National Authority for Quality Assurance & Accreditation of Education NAQAAE.

7. Program Structure and Contents

7.1 Program Duration:

9 semesters

7.2 Program Structure:

Total hours of the program:-	160 hours
University Requirements Percentage:-	8.75%
Faculty Requirements Percentage:-	20%
Discipline Requirements Percentage:-	71.25%
Basic Sciences Percentage:-	11.25%

7.3 Program Courses VS Requirements

7.3.1 List of Compulsory Courses

Code	Course Name	Pre-requisites	Cr. Hrs.	Ct. Hr.			
				Lec.	Lab.	Tut.	Sum
ARC 101	Architecture Design 1		3	1	0	4	5
ARC 111	Introduction to Building Technology		3	2	0	3	5
ARC 131	Theory of Architecture 1		2	2	0	1	3
ARC 103	Visual Design		3	2	0	2	4
ARC 102	Architecture Design 2	ARC 101	3	1	0	4	5
ARC 112	Building Construction 1	ARC 111	3	2	0	3	5
ARC 132	History of Architecture 1		2	2	0	1	3
ARC 104	Perspective and Sciography		2	1	0	2	3
ARC 142	Computer Applications 1		3	2	2	0	4
ARC 152	Environmental Control & Design		2	2	0	1	3
ARC 201	Architecture Design 3	ARC 102	3	1	0	4	5
ARC 211	Building Construction 2	ARC 112	3	2	0	3	5
ARC 231	Theory of Architecture 2	ARC 131	2	2	0	1	3
ARC 221	Introduction to Urban Planning		3	2	0	2	4
ARC 213	Technical Installation		3	2	0	2	4
ARC 241	Computer Applications 2	ARC 142	3	2	2	0	4
ARC 202	Architecture Design 4	ARC 201	3	1	0	4	5
ARC 212	Working Drawing 1	ARC 211	3	1	0	4	5
ARC 232	History of Architecture 2	ARC 132	2	2	0	1	3
ARC 252	Smart Buildings Design	ARC 152	2	2	0	1	3
ARC 222	Introduction to Housing		3	2	0	2	4
ARC 214	Profession Practice & Building Legislation		2	2	0	1	3
ARC 361	Senior Design Project-1	---	2	1	0	3	4
ARC 311	Working Drawing 2	ARC 212	3	1	0	4	5
ARC 313	Quantities & Specifications		3	2	0	2	4
ARC 321	Introduction to Urban Design		3	2	0	2	4
ARC 334	Theory of Architecture 3	ARC 231	2	2	0	1	3
ARC 362	Senior Design Project-2	ARC 361	4	2	0	4	6
ARC 312	Working Drawing 3	ARC 311	3	1	0	4	5
ARC 421	Introduction to Landscape Architecture		3	2	0	2	4
CIV 123	Structure Analysis	BES 021	3	2	0	2	4
CIV 143	Construction Survey	BES 012	3	2	2	0	4
CIV 152	Design of RC Structures	CIV 123	2	2	0	1	3
CIV 434	Soil Mechanics & Foundations	CIV 152	3	2	2	0	4
CIV 323	Design of Steel Structures	CIV 123	2	2	0	1	3
CIV 401	Construction Engineering & Management		2	2	0	1	3
Total			96	63	8	73	144

*The student can register the Senior Design Project course after passing 70% of the program Cr. Hrs., i.e., 112 Cr. Hrs.

7.3.2 List of Elective Courses

Elective Courses 1							
Code	Course Name	Pre-requisites	Cr. Hrs.	Ct. Hr.			
				Lec.	Lab.	Tut.	Sum
ARC 352	Acoustics and Daylighting in Buildings	ARC 152	3	2	0	2	4
ARC 314	Building Codes	ARC 214	3	2	0	2	4
ARC 302	Interior Design 1	ARC 103, ARC 202	3	2	0	2	4
Elective Courses 2							
ARC 342	Computer Aided Environmental Design	ARC 152, ARC 202	3	2	2	0	4
ARC 344	Computer Applications 3	ARC 241	3	2	2	0	4
ARC 346	Digital Presentation in Architecture	ARC 241, ARC 202	3	2	2	0	4
Elective Courses 3							
ARC 322	Urban Sociology	ARC 321	3	2	0	2	4
ARC 324	New Trends in Urbanism	ARC 321	3	2	0	2	4
ARC 326	Transportation of Urban Planning	ARC 221	3	2	0	2	4
Elective Courses 4							
ARC 451	Sustainable Community Design	ARC 152, ARC 252	3	2	0	2	4
ARC 401	Interior Design 2	ARC 302	3	2	0	2	4
ARC 403	Architecture Criticism	ARC 202	3	2	0	2	4
Elective Courses 5							
ARC 441	GIS in Planning	ARC 221, ARC 241	3	2	2	0	4
ARC 443	Advanced Modeling	ARC 344	3	2	2	0	4
ARC 445	Digital Media in Architectural Design	ARC 241	3	2	2	0	4
Elective Courses 6							
ARC 423	Aesthetics and Urban Design	ARC 152, ARC 202	3	2	0	2	4
ARC 425	Human Behavior & Urban Form	ARC 322	3	2	0	2	4
ARC 427	Qualitative Methods of Urban Planning	ARC 221	3	2	0	2	4

8. Subject Area

Subject Area	Required	Program Total Credit Hours	
		Total hours of five Levels	% Hours of five Levels
Humanities and Social Sciences	9-12%	16	10%
Mathematics and Basic Sciences	20-26%	32	20%
Basic Engineering Sciences	20-23%	33	21%
Applied Engineering and Design	20-22%	35	22%
Computer Applications and ICT	9-11%	18	11%
Projects and Practice	8-10%	13	8%
Discretionary	6-8%	13	8%

9. Registration conditions and enrollment requirements

1. The Faculty of Engineering in Benha is a governmental educational institution affiliated with the University of Benha. It follows the rules and regulations issued by the Council. It also provides education in specialized programs for free. The students who benefit from this free education are those who have completed their secondary school certificate or its equivalent and enrolled in during the coordination office in the same year of obtaining this certificate or what is equivalent to it. The student maintains his free education if the conditions stipulated in the university's regulating law are fulfilled and its executive regulations.
2. All programs in these regulations are presented on a credit hour system.
3. The faculty sets, through the Faculty Council, the general rules for enrollment in various programs such that the student's desire is the principle of equal opportunities is the basis for accepting students into the education system.
4. The top thirty students in high school are exempted - Scientific name (mathematics division)- according to the recurring order of study fees when joining the program C Multi-specialization. The exemption will continue for a period of study if the student maintains a cumulative GPA of no less than 3.7 in every semester, otherwise the student will lose this privilege and other rules will apply on it.

5. The top five students in the preparatory year are exempted in any government engineering faculty from the tuition fees when enrollment in multi-specialty programs, and the exemption continues if the student maintained a cumulative GPA of 3.7 or greater otherwise, the student would lose this privilege and the rules will apply on it.
6. Students who excel academically are granted scholarships within multiple programs specializations Discounts in tuition fees
7. As follows:
8. If $GPA \geq 3.7$ reduction up to 20%
9. If $3.7 \leq GPA \leq 3.3$, a reduction of up to 10%
10. If a student in specialized programs does not achieve a cumulative GPA of ≤ 2.0 , four consecutive main semesters, it is possible allowing him to register courses for two semesters to raise his average. If this is not achieved, the student can move to multi-disciplinary programs with the payment of tuition fees.
11. If the registered student fails in any of the multiple program's assignments in a course twice, he is allowed to register this decision will be repeated for four more times for an additional fee.

10. Requirements for obtaining the degree

1. The student is required to obtain a Bachelor of Science degree in Study:
2. Successfully passing the required 160 credit hours (credit hours). In one of the programs according to the requirements stipulated with a cumulative GPA of no less than 2.0.
3. Success in all courses that have (0) credit hours.
4. The graduation project is an essential part of the program's requirements for graduation. The graduation project can be completed at a period of two consecutive semesters according to the requirements of the program. The student graduates unless he meets the requirements success in the project.
5. The student must complete field training twice at least. For a period of no less than four weeks for each training during his period of study.
6. The student must have passed 70% of the credit hours at least until he can register in graduation project. If the project is divided into two semesters the student will have to study them according to it is not permissible to register for the graduation project during the semester summer study.

11. Duration of study

1. The academic degree is granted when the student fulfills the requirements for obtaining according to what is specified by the internal regulations for the program.
2. It may allow the outstanding student to graduate and obtain a degree bachelor's degree in Engineering The study system is based on credit hours, over a period of 4 academic years or (main eight semesters), after passing all graduation requirements, in addition to extending ordinary study.
3. The maximum duration of the study is twice the stipulated and proposed duration in the program, which does not include class the study was suspended for reasons acceptable to the Faculty Council, and after these For a period of time, the student will be dismissed from the program.

12. Study dates

The academic year is divided into three semesters as follows:

1. The first semester, the fall semester, begins with the beginning of the university year and for a period 15 weeks of instruction.
2. The second semester, spring semester (main semester) after the mid-year university vacation for a period of 15 weeks of instruction.
3. The summer semester (optional semester), which begins in the month of July for a period of 7 school weeks, with double Course hours.

13. Program Evaluation

Evaluator	Tool
Senior Students	Questionnaire-meeting
Graduates	Questionnaire-meeting
Stakeholders	Questionnaire-meeting
Internal Evaluator	Report
External Evaluators	Report

14. Teaching and Learning Methods

Teaching & Learning Methods
Lecture
Tutorials
Computer-based Instruction
Design Studio
Problem-based Learning
Project-based Learning
Interactive Learning
Presentations
Case Study
Report
Co-operative Learning
Brain Storming
Projects
Simulation
Discussion
Practical-based Learning
Self-Learning
Modeling

15. Student Assessment Methods

Assessment Method	
Tests	Oral Test
	Mid Term Exam
	Quizzes
Reports	
Observation	
Discussions	
Projects	Projects
	Mini Projects
Assignments	
Presentations	
Modeling	
Portfolio	
Final Exam	

Head of Department: Prof. Dr. Zeinab Faisal



Date: 10 / 9 / 2023



Benha University
Benha Faculty of Engineering
Architectural Engineering Department



16. Appendix

16.1. Program Mission

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

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



Benha University
Benha Faculty of Engineering
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16.2. Program Objectives

Program Objectives	Program Mission			(NARS 2018) CBE										Graduate Attributes														Requirements			Credit Hours of Subject Area													
	M1	M2	M3	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	B1	B2	B3	B4	B5	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10	G11	G12	G13	G14	University	Faculty	Program	Humanities and Social Sciences	Mathematics and Basic Sciences	Basic Engineering Sciences	Applied Engineering and Design	Computer Applications and ICT	Projects and Practice	Discretionary		
PO1: Apply a wide spectrum of engineering knowledge, science and specialized skills with analytic, critical and systemic thinking to identify and solve engineering problems in real life situation.	*	*		*	*							*							*	*														*		*		*						
PO2: Prepare qualified innovative architects who can adhere to architectural engineering ethics and standards and work to develop the profession and the community and promote sustainability principles.	*		*			*										*					*	*								*			*	*			*						*	
PO3: Work in and lead a heterogeneous team and display leadership qualities, business administration, and entrepreneurial skills.	*									*	*	*										*					*						*		*		*					*		
PO4: Use techniques, skills, and modern engineering tools necessary for architectural engineering practice.		*					*	*								*							*								*						*	*		*	*	*		
PO5: Master self-learning and life -long learning strategies to communicate effectively in academic/professional fields.	*							*			*		*												*	*			*	*			*	*		*		*						
PO6: Strengthening students' ability to make decisions, solve problems, and develop architectural and urban solutions to develop and serve the local community.			*						*		*			*	*		*											*	*				*	*			*							
PO7: Create architectural designs that satisfy both aesthetic, technical and meet building users' requirements.		*	*			*	*		*					*	*													*	*	*			*	*			*						*	

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

16.3. Graduate Attributes

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



16.4. Student Competences

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

Student Competences	Teaching & Learning Methods															Assessment Methods														
	Lecture	Tutorials	Project-based	Design Studio	Student-based	Self-based	Active Learning	Representation	Case Study	Report	Iterative Learning	Brain Storm	Projects	Simulation	Discussion	Self-based	Self Learning	Modeling	Oral Test	Mid-term	Quizzes	Reports	Observation	Discussions	Projects	Mini Projects	Assignments	Presentations	Modeling	Portfolio
A1	*	*			*										*				*	*	*	*	*	*	*	*	*	*	*	*
A2			*										*		*				*	*	*	*	*	*	*	*	*	*	*	*
A3	*	*		*		*		*	*			*		*					*	*	*	*	*	*	*	*	*	*	*	*
A4	*	*		*															*	*	*	*	*	*	*	*	*	*	*	*
A5						*		*	*					*	*				*	*	*	*	*	*	*	*	*	*	*	*
A6	*	*				*						*		*					*	*	*	*	*	*	*	*	*	*	*	*
A7					*	*			*		*	*	*	*	*			*	*	*	*	*	*	*	*	*	*	*	*	*
A8	*	*							*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
A9				*	*	*		*	*		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
A10								*	*					*				*	*	*	*	*	*	*	*	*	*	*	*	*
B1	*			*	*	*	*	*	*		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
B2		*	*	*	*	*	*	*	*		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
B3	*			*	*	*	*	*	*		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
B4		*	*	*		*			*					*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
B5	*													*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*

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

16.5. Program Courses (Compulsory & Electives)

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

16.7. Assessment Methods VS Teaching & Learning Methods

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