

## Transcripts

Course Title	Semester	Credit	Grade (20)	Grade (4)
Fundamental of Mathematical Sciences	1 <sup>st</sup>	3	12	2
Fundamental of Computers and Programming	1 <sup>st</sup>	3	20	4
General Mathematics 1	1 <sup>st</sup>	3	16	4
General Physics 1	1 <sup>st</sup>	3	16	4
General Physics 1 lab	1 <sup>st</sup>	1	16.5	4
Mathematical Software 1	1 <sup>st</sup>	1	17	4
Foreign Language (English)	1 <sup>st</sup>	3	17	4
<b>Aggregations (Sum of credits – Weighted average of grades)</b>	-	17	16.26	3.65
Advanced Programming	2 <sup>nd</sup>	3	20	4
Fundamental of Matrix and Linear Algebra	2 <sup>nd</sup>	3	18.50	4
Fundamental of Discrete (Combinatorial) Mathematics	2 <sup>nd</sup>	3	20	4
General Mathematics 2	2 <sup>nd</sup>	3	16.50	4
Persian Literature and Grammar	2 <sup>nd</sup>	3	20	4
Political views of Imam Khomeini (General Course)	2 <sup>nd</sup>	2	18	4
Mathematical Software 1	2 <sup>nd</sup>	1	20	4
<b>Aggregations (Sum of credits – Weighted average of grades)</b>	-	18	18.94	4
Differential Equations	Summer	3	16.50	4
Islamic Moral (General Course)	Summer	2	20	4
<b>Aggregations (Sum of credits – Weighted average of grades)</b>	-	5	17.90	4
Data Structures and Algorithms	3 <sup>rd</sup>	4	18.70	4
Fundamental of Logic and Set Theory	3 <sup>rd</sup>	3	20	4
Algorithmic Graph Theory	3 <sup>rd</sup>	3	18	4
Fundamental of Numerical Analysis	3 <sup>rd</sup>	3	19.50	4
Fundamental of Probability	3 <sup>rd</sup>	3	20	4
The History of Islamic Civilization and Culture (General Course)	3 <sup>rd</sup>	2	20	4
<b>Aggregations (Sum of credits – Weighted average of grades)</b>	-	18	19.29	4
Fundamental of Computation Theory	4 <sup>th</sup>	3	20	4
Principals and Design of Computer Systems	4 <sup>th</sup>	4	19.15	4
Numerical Linear Algebra	4 <sup>th</sup>	3	19.50	4
Fundamental of Algebra	4 <sup>th</sup>	3	18.50	4
Advanced English (Subject)	4 <sup>th</sup>	3	19.50	4
Physical Education 1	4 <sup>th</sup>	1	19	4
Islamic Taught 1 (General Course)	4 <sup>th</sup>	2	19	4
<b>Aggregations (Sum of credits – Weighted average of grades)</b>	-	19	19.27	4
Computer Networks	5 <sup>th</sup>	3	20	4
Data Mining	5 <sup>th</sup>	3	20	4
Fundamental of Operating Systems	5 <sup>th</sup>	4	18.60	4
Compiler	5 <sup>th</sup>	3	20	4
Advanced Topics in Computer Science (Soft Computing)	5 <sup>th</sup>	3	20	4
Programing Languages	5 <sup>th</sup>	3	18.50	4
Physical Education 2	5 <sup>th</sup>	1	19	4
Islam and Humans (General Course)	5 <sup>th</sup>	2	20	4
<b>Aggregations (Sum of credits – Weighted average of grades)</b>	-	22	19.50	4

Image Processing	6 <sup>th</sup>	3	20	4
Design and Analysis of Algorithms	6 <sup>th</sup>	3	20	4
Data Base	6 <sup>th</sup>	3	20	4
Linear Programming (Linear Optimization)	6 <sup>th</sup>	3	18.5	4
Undergraduate Final Project	6 <sup>th</sup>	3	20	4
Fundamental of Insurance	6 <sup>th</sup>	2	19.2	4
Family Planning and Population (General Course)	6 <sup>th</sup>	2	19	4
<b>Aggregations (Sum of credits – Weighted average of grades)</b>	-	19	19.57	4
<b>TOTAL Aggregation</b>		118	18.82	3.95

## Attended Courses and Grades [To Be Completed]

You can find here a brief explanation about each and every course in which I attended during my undergrad education by semester. You can see my grades at the last pages too.

- **1<sup>st</sup> Semester**

- I. **Fundamental of Mathematical Sciences**

- This was a fundamental course relating to the basis of the mathematics. It consisted of Set Theory, Boolean algebra, etc.

- II. **Fundamental of Computers and Programming**

- In this course we were introduced to basic concepts of how computers work and we were started to learn how to code (although I started coding in high school many years ago). The course was mainly on c/c++ programming languages. We also designed and developed several small projects. As the final project of this course we developed a graphical “Ball Mania” game. You can find more on this in my home page at [www.ariyanzareei.com](http://www.ariyanzareei.com) under the Projects section.

- III. **General Mathematics 1**

- This was a primary course on the basic topics of mathematics such as functions, limits, derivations, integrals, series, etc.

- IV. **General Physics 1**

- We learned fundamental concepts of physics such as Cinematic, Dynamic, Torque, Work & Energy, etc. in this course.

- V. **General Physics 1 lab**

- In this pragmatic course, we learned how to use laboratory tools related to basic concepts like Cinematic, Dynamic, Torque, etc.

- VI. **Mathematical Software 1**

- This was a pragmatic course too, in which we learned how to use mathematical softwares like maple in order to solve mathematical problems such as finding the root of a function, finding the limit/derivative/integral of a function, plot a 2D/3D function, etc.

- VII. **Foreign Language(English)**

- As a General course, it helps the students to improve their English Reading/Writing Skills.

- **2nd Semester**

- I. **Advanced Programming**

- Advanced concepts in programming like OOP, Generic, GUI, Threading, etc. is the main focus of this course. We mainly used Java language with Netbeans IDE in this course. Like the Fundamental course in programming, we developed several other projects which the final project of this course was Flowcharter, an application to draw and Run flowcharts (like a simple computer simulator). You can find more on this in my home page at [www.ariyanzareei.com](http://www.ariyanzareei.com) under the Projects section.

- II. **Fundamental of Matrix and Linear Algebra**

- In this course we were introduced to Linear Algebra and Matrix and their basic concepts. We mainly focused on solving linear equation using different techniques and algorithms

like Cramer's rule, Vectors and Matrixes, Vector Spaces, Linear Transformations, Eigen Values/Vectors, etc.

### **III. Fundamental of Discrete (Combinatorial) Mathematics**

As a Computer Science program, it is vital for students to have a deep knowledge on Discrete Mathematics. In this course we were introduced to counting, Permutation, recursive relations, recursive functions, Graph Theory, etc.

### **IV. General Mathematics 2**

This course is actually a complementary course for the General Mathematics 1. We were dealt with surfaces, vectors, vector functions, functions with more than one variables, curves, double/triple integrals, etc.

### **V. Persian Literature and Grammar**

It is important for a student to know the history and literature of his/her own country and language. Furthermore in the future these students who are going to serve in different jobs, need to be able to write formal letters, speak fluently and mistake free and prepare good speeches.

### **VI. Political views of Imam Khomeini**

A General-obligatory course for all of the undergrad programs.

- **Summer Semester**

- I. Differential Equations**

- As the title of the course is self-explaining, in this course we encountered different differential equations and we learned how to solve them.

- II. Islamic Moral**

- A General-obligatory course for all of the undergrad programs.

- **3rd Semester**

- I. Data Structures and Algorithms**

- In this course we learned basic concepts of data structures, like arrays, linked lists, trees, heap, red-black trees, hash table, different sort algorithms such as bubble sort, insertion sort, heap sort, merge sort, quick sort, bucket sort, counting sort, etc. And more importantly at the beginning of the course, we learned about computation cost and the concept of the Order (big/small O, Theta, and Omega). We did a large number of projects in different subjects.

- II. Fundamental of Logic and Set Theory**

- Computer science, as a field of study is highly related to mathematics, especially to areas such as Set Theory, Discrete mathematics, etc. we learned basic concepts of set theory and mathematical logic in this course. We mainly worked on Propositional logic and Predicate Logic. We also did some projects in order to understand these concepts practically.

- III. Algorithmic Graph Theory**

- As we mentioned earlier, it is vital for us as a computer science student, to have a comprehensive knowledge in the field of discrete mathematics. One of the most important fields of mathematics which has a key role in computer science is Graph Theory. We learned both basic and advanced concepts in Graph Theory. As advanced concepts we were taught Graph Matching, Network Flow, Min-Max Theory, finding Hamiltonian Cycle, finding Eulerian Circuit, etc.

#### **IV. Fundamental of Numerical Analysis**

In this course we learned how to approximate functions, how to find the roots of the complicated functions using Numerical approaches, how to interpolate functions, etc.

#### **V. Fundamental of Probability**

We learned statistics and probability theory in this course. In statistics, we learned different statistical parameters both central and dispersion tendencies and how to compute them. In Probability section, we learned how to compute probability in different problems. We were taught Bayesian Theorem, Conditional Probability, etc.

#### **I. The History of Islamic Civilization and Culture**

A General-obligatory course for all of the undergrad programs.

- **4th Semester**

- I. V