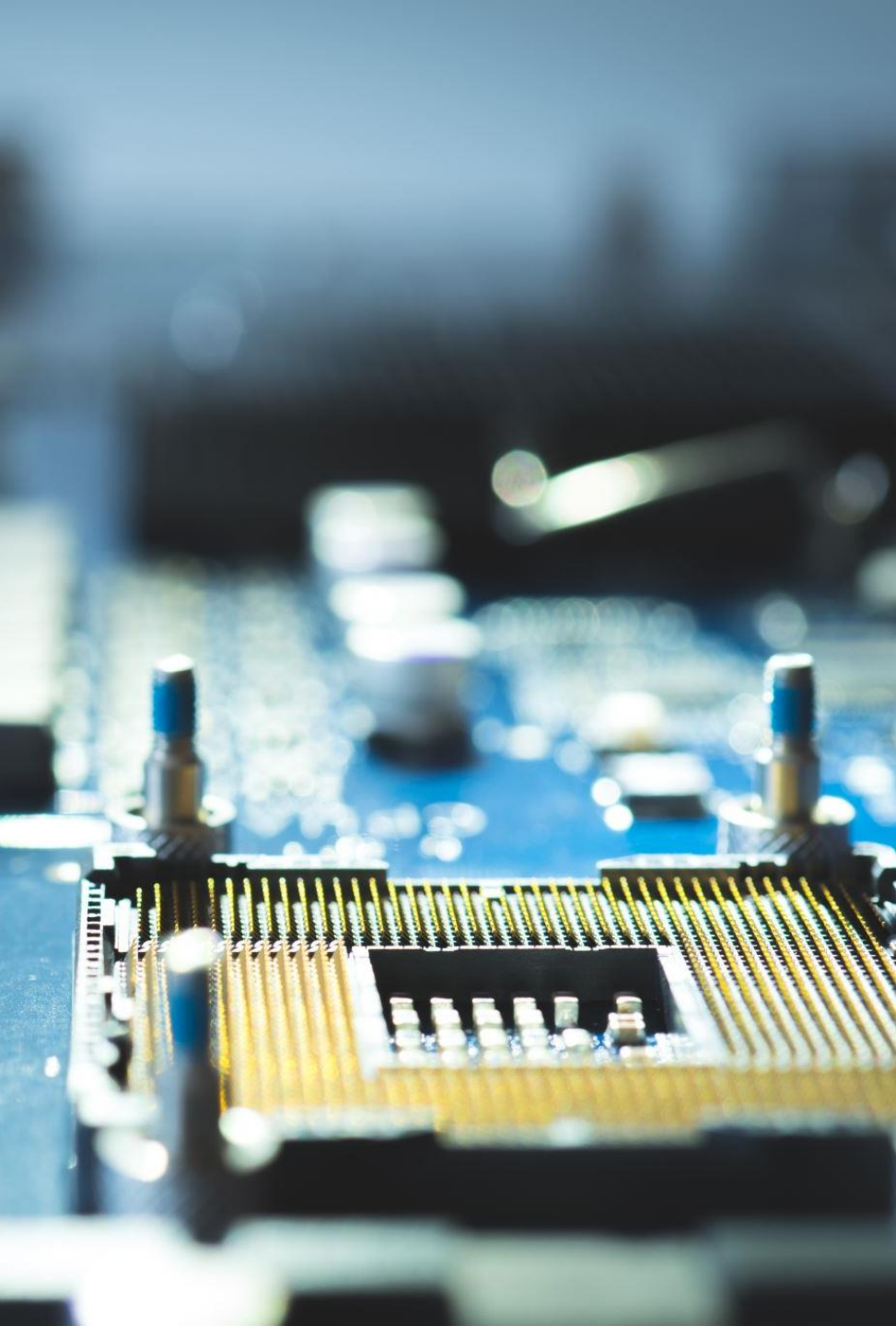


Computer Engineering

Karamanođlu Mehmetbey University



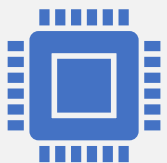
Overview

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About Computer Engineering



Computer Engineering is basically related to Algorithms, Programming and Software. Computer Networks, Databases and Database Management, and Embedded Systems are also other working fields of Computer Engineering.



As a computer engineers, we get training of programming languages, software design, software-hardware integration. We are taking critical roles on fields what software can achieve or not, how software show better efficiency on a particular tasks, how software can read and manipulate hidden data, how software work smarter, how humans and software interact with each other, and integration of circuit design with software-hardware integration.

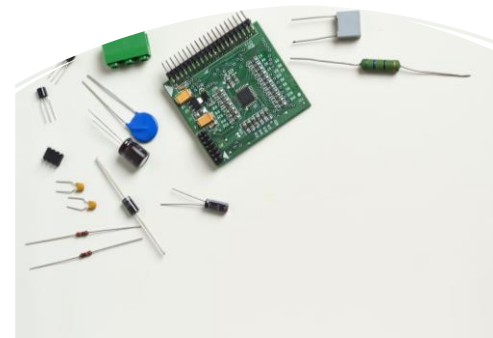
Duties and Workplaces of a Computer Engineer

- We can work not only in Private Sector but also in State Affiliations
- Besides those, we can run our projects and be the boss of own 😊
- Meanwhile, we have a chance to work as an Academician at universities by studying in a specific field

Software Specialist	Web Design Specialist	Network Specialist - Engineer
Data Analyst	Data Architect	Database Specialist
Robotic Engineer	Quality Control and Test Specialist	Control Engineer
Hardware Engineer	Game Developer	Mobile Developer
Cyber (Information) Security	Configuration Manager	Academician

Education

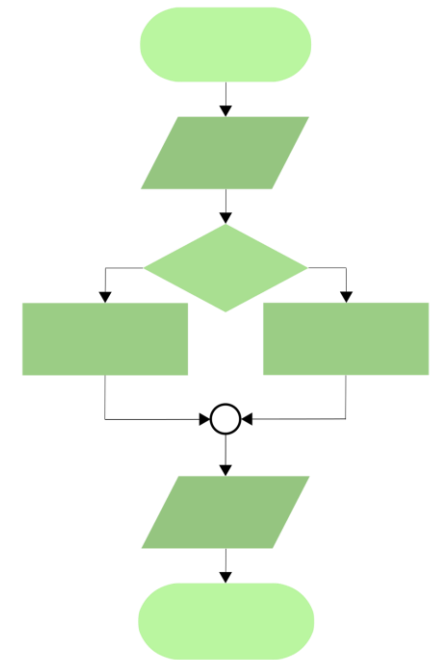
- In computer engineering education, we are taking computer engineering-specific courses with some engineering-specific courses. These engineering courses need important and serious studying as well as other computer domain specified courses.
 - Mathematics
 - Physics
 - Basic Electronics
 - Differential Equations
 - Probability and Statistic
 - Linear Algebra and Matrix Analysis
 - Discrete Mathematics
 - Occupational Health and Safety
- We can be more successful on the field-specific courses if we give our attention seriously to these lectures that we are taking more generally in the first couple semesters of our 4-year bachelor's education.



Education

- Now let's have a glance at computer engineering courses
 - Introduction to Computer Engineering
 - Introduction to Programming and Algorithms
 - Computer Programming
 - Data Structures
 - Object Oriented Programming
 - Database
 - Logic Circuits
 - Numerical Analysis
 - Formal Languages and Automats
 - Microcontrol Based System Design
 - Computer Hardware
 - Computer Architecture
 - Internet of Things Applications
 - Computer Networks
 - Operating Systems
 - Embedded Systems

- Software Engineering
- Visual Programming Languages
- Web Programming
- Internet Based Programming
- Algorithm Analysis
- Fuzzy Logic
- Digital Image Processing
- Engineering Applications with Matlab
- Deep Learning
- Artificial Intelligence
- Artificial Neural Networks
- Big Data Analysis
- Data Security
- Mobile Technologies
- Game Programming
- Aviation Technology and Model Aircraft Construction



What kind of education do we get ?

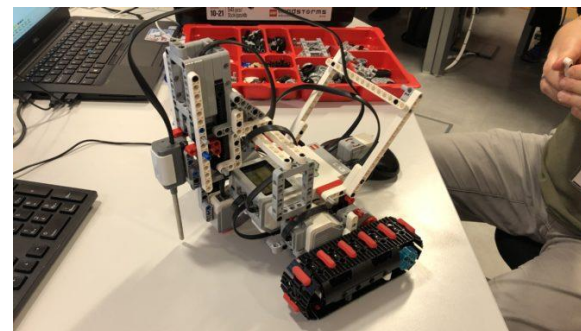
- Besides lectures, we have two important [Summer Internships](#) that we need to complete at the end of the 2nd and 3rd years.
- These internships have too much importance with respect to our individual development. They are preparing us to not only real-world problems but also the sector.
- Meanwhile, the internships give us opportunities to improve our abilities in such topics as teamwork and project management.
- We can complete the two internships in one subject if we have decided which field we want to work in. On the other hand, it also will be beneficial to take advantage of different technologies and opportunities by doing internships in different fields.
- Internships provide us technical contributions along with social contributions, so we can create our own network while we are still studying.
- Also, having a wide network gives us positive contributions in the professional/business life.



How should a Computer Engineer Candidate study ?

- Do not allow the previous pages take your eyes from their nests 😊 Of course we do not take all the courses at once, we should not to.
- In order to complete the university education successfully and to become a good computer engineer, we need to have a strong understanding of the ground courses among the computer engineering-specific courses.
- Basically, we can summarize as follow:
 - For instance, the Computer Programming and Data Structures courses should be our priority if we want to be a Software Developer.
 - If we want to be a Hardware or Robotic Engineer then the Computer Organization/Architecture, Embedded Systems, and Automata courses should be our priority.

```
17 string sInput;
18 int iLength, iN;
19 double dblTemp;
20 bool again = true;
21
22 while (again) {
23     iN = -1;
24     again = false;
25     getline(cin, sInput);
26     stringstream(sInput) >> dblTemp;
27     stringstream(sInput) >> iLength;
28     if (iLength < 4) {
29         again = true;
30         continue;
31     } else if (sInput[iLength - 3] != '.') {
32         again = true;
33         continue;
34     } while (++iN < iLength) {
35         if (isdigit(sInput[iN])) {
36             continue;
37         } else if (iN == (iLength - 3)) {
38             continue;
39         }
40     }
41 }
```



Tips for Being a Good Computer Engineer

- In this section, let's look at how we can act according to grades, how we should study and what we should pay attention to.

1st Grade

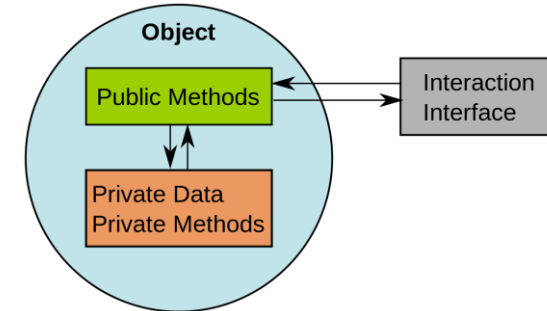
- In the first year of the study, we mainly take the basic courses that we mentioned before. These are; Mathematics I-II, Physics I-II, Foreign Language (English) I-II, Statistics and Probability, Algorithms and Introduction to Programming, Introduction to Computer Engineering and Computer Programming courses.
- Since we will remember some of these courses from high school, we should take advantage of the opportunity to adapt to the university and the department as well in our first year here. Introductory courses of the department will warm us up to Computer Engineering.
- Particularly, we must make sure that we learn the Algorithms and Computer Programming courses by understanding their concepts thoroughly with serious and devoted work since this will be our first step in Computer Engineering.

Algorithm 1 Compute sum of integers in array

```
1: procedure ARRAYSUM(A)
2:   sum = 0
3:   for each integer i in A do
4:     sum = sum + i
5:   end for
6:   Return sum
7: end procedure
```

Tips for Being a Good Computer Engineer

2nd Grade



- In the second year of the study; we will take the Object-Oriented Programming (OOP), Data Structures, Database, Logic Circuits, Web Programming, and Microcontrol Based System Design courses.
- In this year, we will see how real-life projects are created with Object-Oriented Programming, how Databases are used in these projects, and how they are beneficial for those projects. So, it is important for us to understand the OOP structure very well.
- We will have a better understanding of the Hardware side of the computers with Logic Circuits and Microcontrol courses.
- We will reinforce our knowledge with small projects and tests which we will make this year of the study.
- We have a summer internship that we must complete in the summer of sophomore year:
 - When we are in the 2nd year, it is important for us to choose an internship place considering the courses we have taken and the field we want to work in towards the end of the 1st term or at the beginning of the 2nd term.

Tips for Being a Good Computer Engineer

3rd Grade

- In the third year of the study; we will take the Numerical Analysis, Computer Hardware, Computer Architecture, Computer Networks, Operating Systems, Algorithm Analysis, Internet Based Programming, Visual Programming, Fuzzy Logic, and Artificial Intelligence courses.
- We will now have more knowledge and experience about which field we want to focus on with the courses we will take this year. Our interest and success in these courses will determine which sub-branches we will focus on under the framework of Software and Hardware.
- Our third year will be a year where we can differentiate best the fields of study, which requires a little more work than the first two years. At the end of this year, we have a summer internship just like the previous year. Since we will now be experienced in internships, we will better decide where and what kind of internship we will do.
- What we learned this year will guide us on our Graduation Project in 4th grade.



Tips for Being a Good Computer Engineer

4th Grade



- In the last year of the university; we will take the Digital Image Processing, Artificial Intelligence, Engineering Applications with Matlab, Deep Learning, Big Data Analysis, Internet of Things Applications, Software Engineering and Embedded Systems courses along with a Graduation Project that we will do for one or two semesters.
- Now we have come to the end of the road 😊 Since the courses this year are field-specific, it will be a year when we will focus on the field we have decided on.
- With the Graduation Project, which is the most important lesson of this year, we will detail and consolidate our knowledge on important topics such as how to develop a project from bottom to top, what are the stages, how a project should be documented.
- The Graduation Project is the last turning point for us before starting the business life, the projects we will develop here will be an important assistant when we start our business life, from this point of view, we can be sure that a good project will lead us to a good job.



International and Domestic Exchange Programs

- In our university, there are three exchange student programs, namely [Erasmus+](#), [Farabi](#) and [Mevlana](#). These student exchange programs are carried out between contracted universities in the country and abroad.
- Students who meet the necessary conditions for exchange programs have the right to study at a different university within the scope of the program.
- These exchange programs provide important contributions to students both in terms of education and social life and help them develop important skills such as foreign language.
- You can find detailed information about the programs by clicking on the links.



General Notes

- Computer Engineering is a department that is interactive and has plenty of extracurricular practices.
- From this perspective, it is important to know that there are many helpful online resources and platforms that allow you to improve yourself and make up for your deficiencies in times outside the university, together with your university education.
- You can benefit from auxiliary courses, trainings and certificate programs in basic areas such as Software, Hardware, Graphics, Human Computer Interaction, Computer Networks, and popular areas such as Artificial Intelligence, Robotics, Data Science, Mobile Applications, Cyber Security.
- With this kind of training and certificates to be taken along with the courses during your university education, you can be one step ahead in starting your business life, especially in the private sector.
- You can always get technical and career support from your professors and advisors throughout your university education.
- You can reach detailed information about [Karamanoğlu Mehmetbey University](#) and [Computer Engineering](#) by clicking on the links.