ii. The next two digits indicate the area (category) of the course, where all Computer Science courses are categorized depending on similarity of the courses as shown in Table 3.

Table 3: Course categories with their corresponding course numbers

Course Category	Code	Courses Under Category
Basic programming and Emerging Technologies	01	Introduction to Emerging Technologies
		Computer programming
Computer Architecture and Operating Systems	02	Computer organization and architecture
		Operating System
		Microprocessor and Assembly Language Programming
		Real time and embedded system
Computer Networking and Security	03	Data Communication &Computer Networking
		Wireless Communication and Mobile Computing
		Computer Security
		Network and System Administration
		Introduction to Distributed Systems
Database Systems	04	Fundamentals of Database Systems
		Advanced Database Systems
Advanced Programming	05	Object Oriented Programming
		Java Programming
		Event-Driven Programming
System Development	06	Software Engineering
Computer Graphics and HCI	07	Computer Graphics
		Human Computer Interaction
		Multimedia
		Simulation and Modeling
Web and Application Development	08	Web programming
		Mobile Application Development
Algorithms	09	Design and Analysis of Algorithms
		Data Structures and Algorithms
Compiler Development and Complexity	10	Automata and Complexity Theory
		Compiler Design
Intelligent Systems	11	Introduction to Artificial Intelligence
		Introduction to Data Mining and Data Warehousing
		Introduction to Machine Learning
		Introduction to Natural Language Processing
		Computer Vision and Image Processing
Projects and Research	12	Industrial Practice
		Research Methods in Computer Science

		Final Year Project I
		Final Year Project II
Selected topics	13	Selected topics in Computer Science

iii. The last digit indicates the semester in which the course is offered. If it is odd, the course is offered during the first semester, and if it is even, the course is offered during the second semester.

For example: CoSc 3023 (Operating Systems), is the course which will be given in the third year first semester and the course is categorized under category 02.

Note: The course Introduction to Emerging Technologies is treated differently as its course code is assigned by MOSHE.

12. Course list with credit hours

Table 4: List of compulsory courses

No	Course Name (Course Title)	Course Code	ECTS	Cr. Hr.
1.	Introduction to Emerging Technologies	EmTe1012	5	3
2.	Computer programming	CoSc1012	5	3
3.	Computer organization and Architecture	CoSc2022	5	3
4.	Microprocessor and Assembly Language Programming	CoSc3025	5	3
5.	Operating Systems	CoSc3023	5	3
6.	Real time and embedded system	CoSc3026	5	3
7.	Data Communication and Computer Networks	CoSc2032	5	3
8.	Network and System Administration	CoSc4036	5	3
9.	Wireless Communication and Mobile Computing	CoSc3034	5	3
10.	Computer Security	CoSc4035	5	3
11.	Introduction to Distributed Systems	CoSc4038	5	3
12.	Fundamentals of Database Systems	CoSc2041	5	3
13.	Advanced Database Systems	CoSc2042	5	3
14.	Object Oriented Programming	CoSc2051	5	3
15.	Java Programming	CoSc3053	5	3
16.	Software Engineering	CoSc3061	5	3
17.	Computer Graphics	CoSc3072	5	3
18.	Computer Vision and Image Processing	CoSc4113	5	3
19.	Web programming	CoSc3081	7	4
20.	Data Structures and Algorithms	CoSc2092	5	3
21.	Design and Analysis of Algorithms	CoSc3094	5	3
22.	Automata and Complexity Theory	CoSc3101	5	3
23.	Compiler Design	CoSc4103	5	3
24.	Introduction to Artificial Intelligence	CoSc3112	5	3
25.	Industrial Practice	CoSc3122	3	2

26.	Research Methods in Computer Science	CoSc4123	3	2
27.	Final Year Project I	CoSc4125	5	3
28.	Final Year Project II	CoSc4126	5	3
29.	Selected Topics in Computer Science	CoSc4132	5	3
Total			**143**	**86**

Table 5: List of elective courses

No	Course Title (Course Name)	Course Code	Cr. hrs	ECTS
1.	Event-Driven Programming	CoSc4055	3	5
2.	Human Computer Interaction	CoSc4075	3	5
3.	Multimedia	CoSc4077	3	5
4.	Simulation and Modeling	CoSc4079	3	5
5.	Mobile Application Development	CoSc4083	3	5
6.	Introduction to Data Mining and Data Warehousing	CoSc4112	3	5
7.	Introduction to Machine Learning	CoSc4114	3	5
8.	Introduction to Natural Language Processing	CoSc4116	3	5
Total			**6**	**10**

Table 6: List of supportive courses

No	Course Title	Course No	Cr. hrs.	ECTS
1	Mathematics for Natural Science	Math1011	3	5
2	Applied Mathematics I	Math1041	3	5
3	Linear Algebra	MATH2011	3	5
4	Probability and Statistics	STAT2015	3	5
5	Digital Logic Design	EENG2041	3	5
6	Discrete Mathematics and Combinatorics	MATH2052	3	5
7	Numerical Analysis	MATH2082	3	5
		Total	**21**	**35**

Table 7: List of Common Courses

No	Course Title	Course No	Cr. hrs.	ECTS
1	Communicative English Language Skills I	FLEn1011	3	5
2	General Physics	Phys1011	3	5
3	General Psychology	Psch1011	3	5
4	Critical Thinking	LoCT1011	3	5
5	Physical Fitness	SpSc1011	P/F	0
6	Geography of Ethiopia and the Horn	GeES1011	3	5
7	Communicative English Language Skills II	FLEn1012	3	5
8	Social Anthropology	Anth1012	2	3
9	Moral and Civic Education	MCiE1012	2	3
10	Economics	ECON2103	3	5

11	Inclusion in Education and Development	SINE2011	2	4
12	Global Trends	IRGI3021	2	4
13	Entrepreneurship & Business Development	MGMT4102	3	5
14	Introduction to emerging technologies	EmTe 1012	3	5
15	Mathematics for natural science	Math 1011	3	5
18	General Chemistry	Chem 1012	3	5
19	Global trends	GITr 1012	3	4
20	Inclusiveness	SNE-1012	3	4
21	History of Ethiopia and the Horn	Hist1011	3	5
		Total	53	77

Table 8: Summary of the total credit hours and ECTS for each course category

No	Course Category	Cr. Hrs	ECTS
1	Compulsory	86	143
2	Elective	6	10
3	Supportive	21	35
4	Common	35	59
Total		**148**	**247**

Table 9: Course Distribution for each year and each Semester

1. **Year 1 Semester 1**

No.	Course Code	Course Title	ECTS	Cr. Hrs.	Lec. Hrs	Lab. Hrs	Tut. Hrs
1.	Math1011	Mathematics for Natural Science	5	3	3	0	2
2.	FLEn1011	Communicative English Language Skills I	5	3	3	0	0
3.	Phys1011	General Physics	5	3	2	1	2
4.	Psch1011	General Psychology	5	3	3	0	0
5.	LoCT1011	Critical Thinking	5	3	3	0	0
6.	SpSc1011	Physical Fitness	0	P/F	2	0	0
7.	GeES1011	Geography of Ethiopia and the Horn	5	3	3	0	0
		Sub Total	**30**	**18**			

2. **Year 1 Semester 2**

No.	Course Code	Course Title	ECTS	Cr. Hrs.	Lec. Hrs.	Lab. Hrs.	Tut. Hrs.
1.	FLEn1012	Communicative English Language Skills II	5	3	3	0	0
2.	Anth1012	Social Anthropology	3	2	2	0	0
3.	Math1041	Applied Mathematics I	5	3	3	0	0
4	Econ- 1011	Economics	5	3	3	0	0
5	EmTe1012	Introduction to Emerging Technologies	5	3	3	0	0
6	MCiE1012	Moral and Civic Education	3	2	2	0	0
7	CoSc 1011	Basic Computer Programming	5	3	2	3	1
		Sub Total	**31**	**19**			

3. Year 2 Semester 1

No.	Course Code	Course Title	ECTS	Cr. Hrs.	Lec. Hrs.	Lab. Hrs.	Tut. Hrs.
1.	EENG2041	Digital Logic Design	5	3	2	3	0
2.	CoSc2022	Computer Organization and Architecture	5	3	3	0	1
3.	MATH2011	Linear Algebra	5	3	3	0	1
4.	CoSc2041	Fundamentals of Database Systems	5	3	2	3	2
5.	CoSc1012	Computer Programming	5	3	2	3	1
6.	STAT2015	Probability and Statistics	5	3	3	0	1
7.	SINE2011	Inclusiveness	4	2	2	0	0
		Sub Total	**34**	**20**			

4. Year 2 Semester 2

No.	Course Code	Course Title	ECTS	Cr. Hrs.	Lec. Hrs.	Lab. Hrs.	Tut. Hrs.
1.	CoSc2051	Object Oriented Programming	5	3	2	3	2
2.	CoSc2042	Advanced Database Systems	5	3	2	3	2
3.	CoSc2032	Data Communication and Computer Networks	5	3	2	3	2
4.	MATH2052	Discrete Mathematics and Combinatory	5	3	3	0	0
5.	CoSc2092	Data Structures and Algorithms	5	3	2	3	2
6.	IRGI3021	Global Trends	4	2	2	0	0
7.	MGMT4102	Entrepreneurship & Business Development	5	3	3	0	0
		Sub Total	**34**	**20**			

5. Year 3 Semester 1

No.	Course Code	Course Title	ECTS	Cr. Hrs.	Lec. Hrs.	Lab. Hrs.	Tut. Hrs.
1.	CoSc3023	Operating Systems	5	3	2	3	2
2.	CoSc3081	Web programming	7	4	3	3	1
3.	MATH2082	Numerical Analysis	5	3	2	3	0
4.	CoSc3061	Software Engineering	5	3	3	0	2
5.	CoSc3101	Automata and Complexity Theory	5	3	3	0	2
6.	CoSc3025	Microprocessor and Assembly Language Programming	5	3	2	3	1
		Sub Total	**32**	**19**			

6. Year 3 Semester 2

No.	Course Code	Course Title	ECTS	Cr. Hrs.	Lec. Hrs.	Lab. Hrs.	Tut. Hrs.
1.	CoSc3034	Wireless Communication and Mobile Computing	5	3	2	3	1
2.	CoSc3112	Introduction to Artificial Intelligence	5	3	2	3	2
3.	CoSc3094	Design and Analysis of Algorithms	5	3	3	0	0
4.	CoSc3026	Real Time and Embedded Systems	5	3	2	3	2
5.	CoSc3072	Computer Graphics	5	3	2	3	1
6.	CoSc3122	Industrial Practice	3	2	0	0	0
7.	CoSc3053	Java Programming	5	3	2	3	2
		Sub Total	**33**	**20**			

7. Year 4 Semester 1

No.	Course Code	Course Title	ECTS	Cr.Hrs.	Lec. Hrs.	Lab. Hrs.	Tut. Hrs.
1.	CoSc4035	Computer Security	5	3	2	3	1
2.	CoSc4113	Computer Vision and Image Processing	5	3	2	3	2
3.	CoSc4123	Research Methods in Computer Science	3	2	2	0	0
4.	CoScXXXX	Elective I	5	3	2	3	1
5.	CoSc4103	Compiler Design	5	3	2	3	2
6.	CoSc4125	Final Year Project I	5	3	0	0	0
		Sub Total	**28**	**17**			

8. Year 4 Semester 2

No.	Course Code	Course Title	ECTS	Cr.Hrs.	Lec. Hrs.	Lab. Hrs.	Tut. Hrs.
1.	CoSc4036	Network and System Administration	5	3	2	3	1
2.	CoSc4038	Introduction to Distributed Systems	5	3	2	3	2
3.	CoSc4132	Selected Topics in Computer Science	5	3	3	0	0
4.	CoScXXXX	Elective II	5	3	2	3	1
5.	CoSc4126	Final Year Project II	5	3	0	0	0
6.	Hist1011	History of Ethiopia and the Horn	5	3	0	0	0
		Sub Total	**30**	**18**			