

**Addis Ababa University**

**Addis Ababa Institute of Technology**

**School of Electrical and Computer Engineering**

**2023/24 Academic Year Semester-II Course Offering**

<b>Year -II</b>					
<b>No.</b>	<b>Course Code</b>	<b>Course Title</b>	<b>ECTS</b>	<b>Pre-requisites</b>	<b>Co-requisites</b>
<b>1</b>	<b>ECEG-2121</b>	Fundamental of Electrical Engineering (Circuit)	<b>5</b>	Applied Mathematics II	Applied Mathematics III
<b>2</b>	<b>ECEG-2122</b>	Electrical Engineering Laboratory I	<b>3</b>	None	Fundamentals of Circuits
<b>3</b>	<b>ECEG-3153</b>	Electrical Workshop Practice I	<b>3</b>	None	None
<b>4</b>	<b>ECEG-2101</b>	Applied Modern Physics	<b>5</b>	None	Applied Mathematics III
<b>5</b>	<b>Math-2042</b>	Applied Mathematics III	<b>7</b>	Applied Mathematics II	None
<b>6</b>	<b>MEng-2091</b>	Engineering Thermodynamics	<b>4</b>	None	Engineering Mechanics II (Dynamics)
<b>7</b>	<b>MEng-2052</b>	Engineering Mechanics II (Dynamics)	<b>5</b>	Engineering Mechanics I (Statics)	None
<b>Total</b>			<b>32</b>		

<b>Year –III</b>					
<b>No.</b>	<b>Course Code</b>	<b>Course Title</b>	<b>ECTS</b>	<b>Pre-requisites</b>	<b>Co-requisites</b>
<b>1</b>	<b>ECEG-3142</b>	Network Analysis and Synthesis	<b>5</b>	Signals and Systems Analysis	None
<b>2</b>	<b>ECEG-3161</b>	Digital Logic Design	<b>5</b>	Applied Electronics I	Applied Electronics II
<b>3</b>	<b>ECEG-3151</b>	Introduction to Electrical Machines	<b>5</b>	Electromagnetic Fields	Electrical Engineering Lab IV
<b>4</b>	<b>ECEG-3152</b>	Electrical Engineering Lab IV	<b>3</b>	Electrical Engineering Lab II	Introduction to Electrical Machines
<b>5</b>	<b>ECEG-3153</b>	Electrical Workshop Practice II	<b>3</b>	Electrical Workshop Practice I	None
<b>6</b>	<b>ECEG-2133</b>	Applied Electronics II	<b>5</b>	Applied Electronics I	Electrical Engineering Lab II
<b>7</b>	<b>ECEG-2134</b>	Electrical Engineering Lab III	<b>3</b>	Electrical Engineering Lab II	Applied Electronics II
<b>Total</b>			<b>29</b>		

Year –IV (Computer Engineering Focus Area)					
No.	Course Code	Course Title	ECTS	Pre-requisites	Co-requisites
1	ECEG-4181	Microcomputers and Interfacing	5	Computer Architecture and Organization	None
2	ECEG-5431	Research Methods and Presentation	3	None	None
3	ECEG-4192	Data Structure	5	Object Oriented Programming	None
4	ECEG-4191	Database Systems	5	Object Oriented Programming	None
5	ECEG-4211	Data Communication and Computer Networks	5	Introduction to Communication Systems	None
6	ECEG-4201	Software Engineering	5	Object Oriented Programming	None
7	ECEG-5212	Computer and Network Security	5	Introduction to Communication Systems Computer Architecture and Organization	None
Total			33		
Year –IV (Electrical Power Engineering Focus Area)					
No.	Course Code	Course Title	ECTS	Pre-requisites	Co-requisites
1	ECEG-4181	Microcomputers and Interfacing	5	Computer Architecture and Organization	None
2	ECEG-4241	Electrical Machine	5	Introduction to Electrical Machines	None
3	ECEG-4242	Power Electronics	5	Applied Electronic I	None
4	ECEG-4231	Modern Control Systems	5	Introduction to Control Engineering	None
5	ECEG-4261	Electrical Installations	5	Electrical Workshop Practice II	None
6	ECEG-4251	Power Systems	5	Introduction to Power Systems	None
7	ECEG-5431	Research Methods and Presentation	3	None	None
Total			33		

Year –IV (Electronics Communication Engineering Focus Area)					
No.	Course Code	Course Title	ECTS	Pre-requisites	Co-requisites
1	ECEG-4181	Microcomputers and Interfacing	5	Computer Architecture and Organization	None
2	ECEG-4301	Communication Systems	5	Introduction to Communication Systems	None
3	ECEG-4192 (or) ECEG-4281	Data Structure (or) Microelectronics Devices and Circuits	5 5	Object Oriented Programming Applied Electronic II	None None
4	ECEG-4321	EM Waves and Guided Structures	5	<ul style="list-style-type: none"> <li>Introduction to Communication Systems</li> <li>Electromagnetic Fields</li> </ul>	None
5	ECEG-4311	Data Communication and Computer Networks	5	Introduction to Communication Systems	None
6	ECEG-5431	Research Methods and Presentation	3	None	None
Total			28		

Year –IV (Electronics Engineering Focus Area)					
No.	Course Code	Course Title	ECTS	Pre-requisites	Co-requisites
1	ECEG-4181	Microcomputers and Interfacing	5	Computer Architecture and Organization	None
2	ECEG-4381	Principles of Electronics Design	5	Applied Electronic II	Microelectronics Devices and Circuits
3	ECEG-4391	Microelectronics Devices and Circuits	5	Applied Electronic II	None
4	ECEG-4321	EM Waves and Guided Structures	5	<ul style="list-style-type: none"> <li>Introduction to Communication Systems</li> <li>Electromagnetic Fields</li> </ul>	None
5	ECEG-5383	Digital System Design	5	Digital Logic Design	None
6	ECEG-5431	Research Methods and Presentation	3	None	None
7	ECEG-4395	Integrated Circuit Technology	5	Applied Electronic II	None
Total			33		

Year –IV (Industrial Control Engineering Focus Area)					
No.	Course Code	Course Title	ECTS	Pre-requisites	Co-requisites
1	ECEG-4181	Microcomputers and Interfacing	5	Computer Architecture and Organization	None
2	ECEG-4342	Electrical Machine	5	Introduction to Electrical Machines	None
3	ECEG-4343	Power Electronics	5	Applied Electronic I	Electrical Machine
4	ECEG-4351	Modern Control Systems	5	Introduction to Control Engineering	None
5	ECEG-4341	Electrical Installations	5	Electrical Workshop Practice II	None
6	ECEG-5431	Research Methods and Presentation	3	None	None
7	ECEG-5372	Introduction to Robotics	5	<ul style="list-style-type: none"> <li>Introduction to Control Engineering</li> <li>Computational Methods</li> </ul>	None
Total			33		
Year -V (Computer Engineering Focus Area)					
No.	Course Code	Course Title	ECTS	Pre-requisites	Co-requisites
1	ECEG-5202	Operating systems	5	Computer Architecture & Organization	None
2	ECEG-5193	Algorithms Analysis and Design	5	Object Oriented Programming	None
3	ECEG-5222	Embedded Systems	5	Microcomputers & Interfacing,	Operating systems
4	ECEG-5203	Introduction to Compilers	5	<ul style="list-style-type: none"> <li>Computer Architecture and Organization</li> <li>Object Oriented Programming</li> </ul>	None
5	ECEG-5461	B.Sc. Thesis	12	<ul style="list-style-type: none"> <li>Industry Internship</li> <li>Research Methods and Presentation</li> </ul>	None
Total			32		

Year -V (Electrical Power Engineering Focus Area)					
No.	Course Code	Course Title	ECTS	Pre-requisites	Co-requisites
1	ECEG-5262	Energy Conversion and Rural Electrification	5	Engineering Thermodynamics	None
2	ECEG-5252	Power System Protection	5	Power Systems	None
3	ECEG-5271	Power System Operation and Control	5	Power Systems	None
4	ECEG-5276	Power system Planning and Management	5	Power Systems	None
5	ECEG-5461	B.Sc. Thesis	12	<ul style="list-style-type: none"> <li>Industry Internship</li> <li>Research Methods and Presentation</li> </ul>	None
Total			32		

Year -V (Electronic Communication Engineering Focus Area)					
No.	Course Code	Course Title	ECTS	Pre-requisites	Co-requisites
1	ECEG-5312	Telecommunication Networks	5	Data communication and Computer Networks	None
2	ECEG-5322	Antennas and Radio Wave Propagation	5	None	None
3	ECEG-5313	Wireless and Mobile Communication	5	Communication Systems	None
4	ECEG-5312	Optics and Optical Communication	5	Communication Systems	None
5	ECEG-5461	B.Sc. Thesis	12	<ul style="list-style-type: none"> <li>Industry Internship</li> <li>Research Methods and Presentation</li> </ul>	None
Total			32		

Year -V (Electronics Engineering Focus Area)					
No.	Course Code	Course Title	ECTS	Pre-requisites	Co-requisites
1	ECEG-5411	Optoelectronics	5	None	None
2	ECEG-4221	VLSI Design	5	Computer Architecture and Organization	None
3	ECEG-5392	High Frequency Electronic Devices and Systems	5	EM Waves and Guide Structures	None
4	ECEG-5401 (OR)	Power Electronics Technology and Applications	5	Applied Electronic II	None
	ECEG-5421	Modern Trends in Electronics Engineering	5	None	None
5	ECEG-5461	B.Sc. Thesis	12	<ul style="list-style-type: none"> <li>Industry Internship</li> <li>Research Methods and Presentation</li> </ul>	None
Total			32		

Year -V (Industrial Control Engineering Focus Area)					
No.	Course Code	Course Title	ECTS	Pre-requisites	Co-requisites
1	ECEG-5344	Electrical Drives	5	Electrical Machines	None
2	ECEG-5373	Industrial Process Control and Automation	5	Introduction to Instrumentation	None
3	ECEG-5352	Digital Control Systems	5	Modern Control Systems	None
4	ECEG-5222	Embedded Systems	5	Microcomputers & Interfacing,	None
5	ECEG-5461	B.Sc. Thesis	12	<ul style="list-style-type: none"> <li>Industry Internship</li> <li>Research Methods and Presentation</li> </ul>	None
Total			32		