

ELECTRONICS DEPARTMENT

COURSE OUTCOME

DEPARTMENT OF ELECTRONIC SCIENCE, SERAMPORE GIRLS COLLEGE

By Course outcomes(CO) we mean the brief statement describing significance and learning that students will achieve and can reliably demonstrate at the end of a course i.e. after completing a paper (whether it is CC/GE). These relate to the skills, knowledge, and behavior that students acquire in their curriculum through the course. The knowledge they will gain should be related to skill development, i.e., writing skill, skill of analytical thinking, critical thinking, problem solving. And then how these skills may be used to get different kind of jobs.

Serampore Girls' College is affiliated to University of Calcutta. It follows the curriculum and syllabus framed by the University of Calcutta. Each departmental head will frame appropriate course outcomes of their Honours and General Programme in consultation with members of the department in this lockdown time and submit it to

Dr. Uttam Haldar: (email: haldaru@ymail.com) For Arts stream

Dr. Sandip Majumdar: (email: sandipiitkgp13@gmail.com) For Science (Including Geography)

The CO statements are defined by considering the syllabus covered in each module of a course. By using the action verbs of learning levels, COs will be designed. Generally, four to five course outcome may be specified for each course base on its weights. It is a very important parameter for NAAC.

The final version of Course Outcomes will be communicated to students, guardians and alumni for their awareness in four ways. It will be uploaded in departmental page of college website. COs are available online in each departmental page in college website (www.seramporegirlscollege.org), which will help the students to compare different COs before admission. Side by side COs will be also available in departmental notice board. Dept. teachers will also demonstrate students during the progression of course.

Table 1: Methods of communication of Course outcome to students, parents and alumni

How Published?	Where Published?	How Disseminated
Print in paper	Department Notice boards	Self-reading by students, parents and alumni
Online	Under Department tab of college Website	Available for Self-reading in public domain

Table 2: Course Outcomes, Program: B. Sc Electronics (General), Program code: ELTG

S.L No	Course	Semester	Course Code	Credit	Marks					Course outcome	Skill Development related to employability and Entrepreneurship development			
					Theory	Practical	Internal Assessment	Attendance	Total					
1	Network Analysis and Analog Electronics (theory)	1	ELT-G-CC-1-1-TH	4	50					10	10	100	<p>After completion of this course, students will</p> <p>Apply knowledge of Voltage and Current sources, Network theorems (Thevenin, Norton, Superposition, Maximum Power Transfer), develop the ability to understand the design and working of BJT/ FET amplifiers. Develop the skill to build, and troubleshoot Analog Circuits, further study in science, and in the professional world.</p>	<p>The course focuses to develop the basic knowledge in circuits. The basic knowledge and conception of circuits is essential to understand the higher level design of analog and digital circuits and engineering. The content of course is also important to qualify the NET, SET, GATE and other job oriented examinations for Electronics students.</p>
2	Network Analysis and Analog Electronics (Practical)	1	ELT-G-CC-1-1-P	2		30							<p>In Oscilloscope practical amplitude, frequency and phase difference is learnt, Diode related experiment is learnt. In BJT I-V characteristics, in Rectifiers half wave and full wave rectifiers related practical, I-V characteristics of JFET/MOSFET , Study of RC Phase Shift Oscillator, Colpitt's Oscillator related practical are learnt.</p>	<p>Analog Circuits related basic instruments handling capabilities are developed. That knowledge is essential for the experiments in higher analog and digital circuits.</p>

3	Linear and Digital Integrated Circuits (theory)	2	ELT-G-CC-2-2-TH	4	50		10	10	100	Having successfully completed this course student will learn The detailed description of Operational Amplifiers, Applications of Operational Amplifiers, Knowledge of Boolean algebra and detailed analysis of logic gates, Analysis of combinational circuits to design registers and counters, Conversion of analog to digital and digital to analog circuits.	Basic knowledge of Boolean algebra, logic gates, operational amplifiers is essential to realize the higher digital circuits. The content of course is also important to qualify the NET, SET, GATE and other job oriented examinations for Electronics students.
4	Linear and Digital Integrated Circuits (practical)	2	ELT-G-CC-2-2-P	2		30				Operational amplifiers related experiment is learnt, In digital circuits design of Adder, Subtractor, flip-flop, registers related experiment are learnt.	Operational Amplifiers related basic instruments handling capabilities are developed. That knowledge is essential for the experiments of hardware related experiment for future applications.
5	Communication Electronics (Theory)	3	ELT -G-CC-3-3-TH	4	50		10	10	100	Completion of this course will enable the students to Know the basics of Electronic Communication, Techniques related to Digital Modulation, Modulation of Amplitude, Frequency, Phase etc. They will also learn Cellular and Satellite Communication	The basic knowledge in Communication Electronics is the building block to understand the communication engineering at higher level. The content of course is also important to qualify the NET, SET, GATE and other job oriented examinations for Electronics students.

6	Communication Electronics (practical)	3	ELT-G-CC-3-3-P	2	30					On completion of this course students will have hands on experience of Amplitude Modulator, Envelope Detector, different Modulation techniques, FM Generator and Detector circuits, ASK, PSK and FSK Modulators.	Basic Communication related experiments are developed. That knowledge is essential for the experiments in higher studies.
7	Microprocessors and Microcontrollers (Theory)	4	ELT-G-CC-4-4-TH	4	50		10	10	100	On completion of this course students will be able to understand Architecture of Microprocessors, Instruction and programming of 8085, interfacing, Architecture and Programming of Microcontrollers(8051).	Microprocessor and Microcontrollers are the building blocks of various peripheral devices. The content of course is also important to qualify the NET, SET, entrance and other job oriented examinations for Electronics students. Such courses are also very important for computer science students as they will learn about assembly language program for microcontrollers and can interface various peripheral devices.
8	Microprocessor and Microcontrollers (Practical)	4	ELT-G-CC-4-4-P	2	30					On completion of this course students will have hands of experience to perform microprocessors and microcontrollers related practical.	Microprocessors and microcontrollers related experiments are developed. It helps in interface many peripheral devices.
9	Semiconductor Devices Fabrication	5	ELT-G-CC-4-5-5-TH	4	50		10	10	100	On completion of this course students will be able to understand Growth Fabrication process of Thin Film semiconductor devices. They can learn about Thermal oxidation Process, VLSI Process. They can understand the fundamental concept of the semiconductor Devices, Memory Devices, Micro electro Mechanical System (MEMS).	Semiconductor Devices are the building blocks of various peripheral devices. The content of course is also important to qualify the NET, SET, entrance and other job-oriented examinations for Electronics students. Such courses are also very important for computer science students as they will learn about assembly language program for microcontrollers and can interface various peripheral devices.

10	Semiconductor Devices Fabrication (Practical)	5	ELT-G-CC-2 5-5-P	30				On completion of this course students will have hands on experience to perform semiconductor devices fabrication.	Semiconductor devices fabrication experiments are developed. It helps in fabrication of many peripheral devices.
11	Electronic Instrumentation	6	ELT-G-CC-4 6-6-TH	50	10	10	100	On completion of this course students will be able to understand Basic measurements of instruments such as Oscilloscope, Signal Generators and Transducers. They can learn about Data Acquisition using Arduino. They can understand the fundamental concept of the Bio-Medical Instrumentation.	Electronic Instruments are the basic element of many large equipments..The content of course is also important to qualify the NET, SET, entrance and other job-oriented examinations for Electronics students.Such courses are also very important for computer science students as they will learn about assembly language program for microcontrollers and can interface various peripheral devices
12	Electronic Instrumentation	6	ELT-G-CC-2 6-6-P	30				On completion of this course students will have hands on experience to perform measurement and determination of electronic instruments.	Electronic Instrumentation experiments are developed. It helps in fabrication of many peripheral devices.

Programme Outcomes of B. Sc Electronics

1. Critical Thinking: Take informed actions after identifying the assumptions that frame our thinking and actions, checking out the degree to which these assumptions are accurate and valid, and looking at our ideas and decisions (intellectual, organizational, and personal) from different perspectives.

2. Effective Communication: Speak, read, write and listen clearly in person and through electronic media in English and in one Indian language, and make meaning of the world by connecting people, ideas, books, media and technology.

3. Social Interaction: Elicit views of others, mediate disagreements and help reach conclusions in group settings.

4. Effective Communication: Speak, read, write and listen clearly in person and through electronic media in English and in one Indian language, and make meaning of the world by connecting people, ideas, books, media and technology.

5. Effective Citizenship: Demonstrate empathetic social concern and equity-centered national development, and the ability to act with an informed awareness of issues and participate in civic life through volunteering.

6. Ethics: Recognize different value systems including your own, understand the moral dimensions of your decisions, and accept responsibility for them.

7. Environment and Sustainability: Understand the issues of environmental contexts and sustainable development.

8. Self-directed and Life-long Learning: Acquire the ability to engage in independent and life-long learning in the broadest context socio-technological changes.

Programme Specific Outcomes (PSO) B. Sc Electronics

1. Students will acquire a comprehensive knowledge and sound understanding of fundamentals of Electronics.

2. Students will develop practical, analytical and mathematical skills in Electronics.

3. Students will be prepared to acquire a range of general skills, to solve problems, to evaluate information, to use computers productively, to communicate with society effectively and learn independently.

4. Students will acquire a job efficiently in diverse fields such as Science and Engineering, Education, Banking, Public Services, Business etc.