Chronogram: Electronic Technology in Biomedicine

	DESCRIPTION	Lectures	Seminars
W1	**T1. Introduction to Circuit Theory (I)** 1. Ohm law. 2. Kirchhoff laws 3. Current and voltage sources.	X	
	T1. Circuit Theory (I): Exercises 1. Ohm law. 2. Kirchhoff law. 3. Ideal current and voltage sources.		X
W2	**T1. Circuit Theory (II)** 4. Superposition theorem. 5. Thevenin and Norton theorem. 6. Real voltage and current sources.	X	
	T1. Circuit Theory (II): Exercises 4. Superposition theorem. 5. Thevenin and Norton theorem. 6. Real voltage and current sources.		X
W3	**T1. Circuit Theory (III)** 7. Capacitors and Inductors (C and L). 8. Time response of C and L. 9. Universal equation for C and L.	X	
	T1. Circuit Theory (III): Exercises 7. Capacitors and Inductors (C and L). 8. Time response of C and L. 9. Universal equation for C and L.		X
W4	**T1. Circuit Theory (IV)** 10. DC and AC circuit analysis. 11. Frequency response of R, C and L circuits. 12. First order passive Filters and Bode Diagram.	X	
	T1. Circuit Theory (IV): Exercises 10. DC and AC circuit analysis. 11. Frequency response of R, C and L circuits. 12. First order passive Filters and Bode Diagram.		X

W5	**T2. Electronic Component** 1. Diodes and Transistors (MOSFET). 2. MOSFET small signal model. 3. Single stage amplifier using MOSFETs.	**X**	
	T2. Electronic Component: Exercises 1. Diodes and Transistors (MOSFET). 2. MOSFET small signal model. 3. Single stage amplifier using MOSFETs.		**X**
W6	**T3. Operational Amplifiers (OA) (I)** 1. Inverting Amplifier. 2. Non-Inverting Amplifier. 3. Comparator.	**X**	
	T3. Operational Amplifiers (OA) (I): Ex. 1. Inverting Amplifier. 2. Non-Inverting Amplifier. 3. Comparator.		**X**
W7	**T3. Operational Amplifiers (OA) (II)** 4. Differential Amplifier. 5. Input and Output impedance. 6. Cascade Amplifiers.	**X**	
	Partial Exam **(Circuit Theory, Electronic Components and OA)**		**X**
W8	**T4. Digital Electronics** 1. Binary system and Boole Algebra. 2. Combinational circuits: Decoders and Multiplexers. 3. Sequential circuits: Flip-Flops	**X**	
	T4. Digital Electronics: Exercises 1. Binary system and Boole Algebra. 2. Combinational circuits: Decoders and Multiplexers. 3. Sequential circuits: Flip-Flops		**X**
W9	**T5. Electronic Circuits in Biomedicine (I)** 1. Sensors and Actuators. 2. Signal conditioning: Analog and digital signals. 3. Block diagram of a sensor readout circuit.	**X**	
	Lab 1: **Electronic components (I)**		**LAB**

W10	**T5. Electronic Circuits in Biomedicine (I): Exercises** 1. Sensors and Actuators. 2. Signal conditioning: Analog and digital signals. 3. Sensor readout circuit.	**X**	
	Lab 2: **Electronic components (II)**		**LAB**
W11	**T5. Electronic Circuits in Biomedicine (II)** 4. Offset cancelation and common mode rejection. 5. Instrumentation Amplifiers. 6. Passive and Active Filters.	**X**	
	Lab 3: **Amplification (OA-I)**		**LAB**
W12	**T5. Electronic Circuits in Biomedicine (II): Exercises** 4. Offset cancelation and common mode rejection. 5. Instrumentations Amplifiers. 6. Passive and Active Filters.	**X**	
	Lab 4: **Amplification (OA-II)**		**LAB**
W13	**T5. Electronic Circuits in Biomedicine (III)** 7. Examples of Biomedicine circuits: a. Temperature measurement. b. Pressure measurement.	**X**	
	Lab 5: **Lab Exam and recovery sessions 1-4**		**LAB**
W14	**T5. Electronic Circuits in Biomedicine (III): Exercises** 7. Examples of Biomedicine circuits: a. Temperature measurement. b. Pressure measurement.	**X**	