******GALGOTIAS UNIVERSITY

Plot No.2, Sector -17 A, Yamuna Expressway,

Greater Noida, Gautam Buddh Nagar, U.P., India

**DEPARTMENT OF Computing Science and Engineering**

CAT-3 Group Activity Report File Submission

Course Name: Basic Electrical and Electronics Engineering

CourseCode: BEE01T1003

School: SCSE

Session: 2021-2022

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| Submitted By: | Submitted To: |
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Program： B.Tech CSE Semester：I

**Name of Component： *Biosensors***

***Introduction:-***

* ***A biosensor is a sensing device comprised of a combination of a specific biological element and a transducer.***
* ***A specific biological element recognizes a specific analyte and the changes in the biomolecule are usually converted into and electrical signal ( which is in turn calibrated to a specific scale ) by a transducer.***
* ***It detects, records and transmits information regarding a physiological change or process.***

***Definition:-***

* ***A biosensor is an analytical device, used for the detection of an analyte, that combines a biological component with a physicochemical detector.***

***A successful biosensor must possess at least some of the following beneficial features:***

* ***The biocatalyst must be highly specific for the purpose of the analyses, be stable under normal storage conditions and, except in the case of colorimetric enzyme strips***
* ***The reaction should be as independent of such physical parameters as stirring, pH and temperature as is manageable. This would allow the analysis of samples with minimal pre-treatment.***
* ***The response should be accurate, precise, reproducible and linear over the useful analytical range, without dilution or concentration. It should also be free from electrical noise.***

***Types Of Biosensors:-***

* ***Electrochemical biosensor***
* ***Optical biosensor***
* ***Thermal biosensor***

***Optical detection biosensor:-***

* ***The output transduced signal that is measured is light for this type of biosensor.***
* ***The biosensor can be made based on optical diffraction. In optical diffraction based devices, a silicon wafer is coated with a protein via covalent bonds. The wafer is exposed to UV light through a photo-mask and the antibodies becomeinactive in the exposed regions. When the diced wafer chips are incubated in an analyte, antigen-antibody bindings are formed in the active regions , thus creating a diffraction grating. This grating produces a diffraction signal when illuminated with a light source such as laser. The resulting signal can be measured.***

**Thanks & Regards**

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