Fakhar U. Singhera

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Education

University of California, Berkeley December 2014
Bachelor of Science in Chemical and Biomolecular Engineering and Materials Science Engineering
GPA: 3.06 out of 4.0

Courses

Chemical Engineering: Chemical Processing and Analysis, Thermodynamics and Refrigeration, Fluid Mechanics, Production and Economics of Biofuel(Ethanol and Biodiesel), Reaction and Transportation Kinetics, Separations, Process Control with EE and Circuits, Distillation Column Operation with Practical Mass and Heat Transfer, Electrochemical Reactions, and Design for Chemical Process Production.
Materials Science and Engineering: Material Microstructure, Mechanical Properties of Materials, Failure Testing, Phase Diagrams & Thermodynamics, Bonding and Crystallography, Identification of Crystal Defects, Biocompatible Material Design, Hydrophobic and Hydrophilic Material Design, Ore Extraction and Processing, Materials Production and Purification, Crystal Growth, Basic Corrosion, and Semiconductor Properties
Physics: Newtonian Mechanics, Waves, Electricity, Magnetism, Optics, and Relativity.
Math: Statistics, Multivariable Calculus, Linear Algebra, Differential Equations
Chemistry: General Chemistry with Quantitative Analysis, Organic Chemistry and Quantum Mechanics.
Biology: Plant Biology, and Cellular Biology
BioEngineering: Protein Synthesis and Characterization

Skills

Computer: Matlab, COMSOL, SuperPro Designer, C++, Java, Data Structures, Microsoft Office Tools, Photoshop
Technical Lab: Gas Chromatography and Mass Spectrometry (GCMS), High Performance Liquid Chromatography (HPLC), Thin Layer Chromatography (TLC), Light Scattering Chromatography, X-ray Diffraction, Distillation Column Operation, Scanning Electron Microscopy with EDS(Energy Dispersive Spectrometry), PCR, Fluidized Bed Reactors, Atomic Force Microscopy, Hazardous Material Handling, Corrosion Cells, Solar Cell Efficiency testing.
Languages: English, Urdu.

Experience

Summer Intern, Insurance Medical Services, Inc. June 2009 – August 2009

- Worked directly with the IT department in transitioning the company website to new servers with hardware based redundancy capabilities.
- Acted as general computer technician fixing general hardware and software problems.
- Updated database of hospitals and clinics providing different procedures to the company.

Projects

Process Development to Produce 1000kg of Bevacizumab December 2014

- Implementation of an inoculum train for cell culturing.
- Kinetic modeling of expected cell and antibody concentrations in production reactor.
- Implementation of a bioseparations train to recover the product antibody at 99+% purity.
- Detailed economic analysis of process based on production costs and market analysis.

Functionalized Bilayer Collagen Keratoprosthesis for Corneal Repair December 2013

- Proposed solution to provide donor-less corneal replacement.
- Selected and modified collagen to mimic natural corneal environment and to aid in natural realignment of collagen fibers.
- Eliminated the need for immunosuppressive drugs and long-term usage of antibiotics.

Cobalt and Nickel Processing December 2013

- Designed a process to extract ore from a mine and process it
- Studied the economics to determine the most favorable process for the best return on investment.
- Environmental sustainability through development of processes to recycle nickel and cobalt

Microbial Production of Biofuels December 2012

- Researched a bacteria and chemical combination to break down plant biomass.
- Designed a reactor to produce large amounts of ethanol with consideration for the economics.
- Performed a cost analysis on the reactor to determine the market potential.

Quantitative Analysis of Boron resistance Idiomarina May 2012

- Analyzed the Extracellular Polysaccharide in the biofilm of the Idiomarina grown under normal conditions and in. Boron heavy conditions.
- Conducted TLC (Thin Layer Chromatography) analysis to figure out composition of biofilm.
- Conducted Phenol Sulfuric Assay with UV-visible Spectrometry to compare biofilm.

Modification and Testing of Materials for Conduction April 2012

- Modified Germanium, a semiconductor, to increase the conductivity of the material.
- Introduced dopants into the crystal structure to decrease the voltage required to traverse the band gap.
- Studied temperature effects on the conductivity of materials and the band gap of semiconductors.

Testing Tensile Strength of Materials April 2012

- Tested the tensile strength of metals in order to observe point of total failure.
- Designed a ductile metal where necking occurs in order to easily determine metal fatigue.
- Analyzed the microstructure after total failure for evidence of stress failure and strain failure.