SHILPA FRANCIS

PERSONAL DETAILS

DOB: 14/11/1984
Communication address: House no:404, 2B Main, Gokula post extension,Muthayala Nagar, Bengaluru, 560054
Permanent address: Pulikkottil house, Cheloor, Irinjalakkuda, Trichur, Kerala, 680121

Phone : (+91)9539359810, (+91)8137909575
email-id: shilpafrancis@gmail.com

EDUCATION

Amrita School of Engineering, Coimbatore, TN *2006 - 2008*
Master of Technology in Engineering Design
Department of Mechanical Engineering Overall CGPA:7.69/10

MVGR College of Engineering, Vizianagaram, AP *2002 - 2006*
Bachelor of Technology in Mechanical Engineering Overall Percentage:74.08

PROJECTS

M.Tech: Finite element simulation of thermal heating in cancerous human skin

This work aimed at investigating the fundamental mechanism of biothermomechanical behavior of skin. An attempt is made to find the tumor ablation temperature and a total time of laser exposure.

B.Tech: Modeling and Analysis of stepped shaft of Scrap Box Transfer Car

Stepped shaft of a Scrap box transfer car is modelled in CATIA, and analysis was done both mathematically and numerically in ANSYS.

TECHNICAL STRENGTHS

Modeling and Analysis	CATIA, ANSYS, COMSOL, PRO E
Programming	Python, MATLAB, C

WORK EXPERIENCE

Viswajyothi College of Engineering, Kerala 2008-2011
Asst. Professor

SCMS School of Engineering and Technology , Kerala 2011-2013
Asst. Professor

Albertian Institute of Science and Technology, Kerala 2014-2018
Asst. Professor

COURSES ATTENDED

1. Computational Fluid Dynamics, IIT Madras,NPTEL 2017 (Certificate earned - Elite)

2. Two day National Workshop on BioFluid Dynamics and Bioheat Transfer, NIT Karnataka, 2017.

3. Control Systems, IIT Kharagpur, ISTE workshop under National Mission on Education through ICT, 2014 (MHRD)

4. Two week workshop on Engineering Thermodynamics, Remote course by IIT Bombay (2012)

5. Mechatronics: Integrated technologies for Intelligent Machines, IIT Madras, sponsored by AICTE, 2010

NUMERICAL IMPLEMENTATIONS

1. Matlab: As a part of my M.Tech Thesis, Matlab code was developed to simulate the photon distribution taking into account the laws of Physics and following the Monte Carlo Simulation.

2. COMSOL Multiphysics: As part of my M.Tech thesis,results from Matlab were coupled to the thermal model developed in COMSOL.Temperature distribution was estimated based on the bioheat equation, followed by the calculation of thermal ablation.

3. Python Programming: Developed code for numerical techniques:

a)Iterative Methods:

(i) Bisection Method

(ii) Newton Raphson Method

(iii) Solution of polynomial equation

b)Solution of Simultaneous algebraic equations:

(i) Gauss Elimination Method

(ii) Triangularizing Method

(iii) Back Substitution

(iv) Gauss Seidel

c) Approximation of functions:

(i) Taylor Series

d)Numerical Solution for differential equations:

(i) Eulers Method

(ii) Runge Kutta Method

(iii)Predictor Corrector Method

3. Python Programming: Developed code for numerical techniques:

4. ANSYS: Familiar in using this package while doing structural analysis for my B.Tech Thesis, and also for various term work during my M.Tech course.

5. Data Structures and C Programming: Course in B.Tech

COURSES TAUGHT

1. Advanced mechanics of materials
2. Mechanics and control systems
3. Engineering graphics
4. Machine drawing
5. Machine design

FIELD OF INTEREST

Fluid flow phenomena is my area of interest because of its complexity. Here I have the freedom to think and formulate a flow problem using an appropriate solution method. I believe that such a field, when applied to engineering problems, have the potential to invoke my creativity and provide challenges that I always expect to meet.

STRENGTH

I am always at learning new things, no matter how difficult they are. As I come across challenges that demand innovative methods to solve them. I always sharpen my problem-solving skills by taking up courses from renowned universities. By doing so, I aspire to go beyond the boundaries set by traditional methods of textbook learning.

I have, in my teaching career, strived to help my students by finding out a simple explanation for the engineering problems and solutions. I have organizational skills that helped me to act as a class tutor. These skills will help me in working as a part of a team and also to understand the demands of a fast evolving professional workplace.

I believe that my ability to take up modern-day engineering challenges is evident from the inter-disciplinary approaches used in M.Tech project. My willingness to learn is well explained by the courses I have taken every year well past by post-graduation.

I think that my interest in trying to understand the natural phenomena and the ability to implement numerical techniques using programming languages can help in setting up numerical simulations for computer-aided engineering. I can explain the solutions from a computational fluid dynamics program using the laws that govern the flow. I believe this is a requisite in the era of using numerous commercial programs to solve engineering problems.

DECLARATION

I do here by declare that the information furnished above is true to the best of my knowledge and belief.

Shilpa Francis

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY

HYDERABAD, ANDHRA PRADESH, INDIA

College Code: 33 (M V G R C E, VIZIANAGARAM)

Ms. Shilpa Francis

D/o T A Thampi

having fulfilled the academic requirements and passed the examination held during *April - 2006* in *First Class With Distinction* has this day been admitted by the Executive Council to the Degree of

Bachelor of Technology

(Mechanical Engineering)

Given under the Seal of the University

H.T.No : **02331A0336**

Date : 30 March, 2007

0648975

Controller of Examinations

Director of Evaluation

Registrar

AMRITA
VISHWA VIDYAPEETHAM
U N I V E R S I T Y

श्रद्धावान् लभते ज्ञानम्

Established u/s 3 of the UGC Act 1956

hereby confers the degree of

Master of Technology

in

Engineering Design

on

Shilpa Francis

for having satisfied all the requirements in July 2008, as laid down by the Academic Council for the award of the said Degree, with First Class,

given on this day, the 5th of October 2008,

under the seal of the University

Sri Mata Amritanandamayi Devi
Chancellor

HQ: Coimbatore, India

Registrar

Vice-Chancellor

President

05-2007