



Project Proposal for Ph.D.

Project Details	
Project Title	Design and Development of orthopedic implants with sustained drug delivery systems.
Project Summary (Minimum 500 and maximum 2000 characters)	Oral cancers cause excessive damage not only to soft tissue but also to the bone and maxillo-facial implants are required as a replacement. To avoid, painful and frequent oral drug administration for such orthopaedic patients, drug loaded titanium implants are very helpful. Cancers in these anatomical regions are highly re-occurring and hence cancer drugs (generally provided as combinational drugs) in sustained <i>in-situ</i> delivery is a necessity. The PhD student shall work on to develop sustained drug delivery systems for the above-mentioned needs.

Ph.D. Supervisors			
Role	Name of Faculty	Academic Unit in IITD/Institute/University	Email ID (Official)
Supervisor 1	Dinesh Kalyanasundaram	Biomedical Engineering (Mechanical Background)	Dineshk@cbme.iitd.ac.in dineshk.iitdelhi@gmail.com
Supervisor 2	Vijay Sharma	Trauma Center, Orthopedics, AIIMS	drvijaysharmatrauma@gmail.com

Project requirements (Student qualifications, experience required, etc) *The candidate will be shortlisted based on common shortlisting criteria decided by ScRC (SIRe)
- B.Tech/B.E / M.Sc./B. Pharma or M.Tech/M.E/ M.Pharma (Biotechnology, Pharma) - Experience in cell culture and animal studies would be preferable.

Source of fellowship/funding (CSIR/UGC/DBT/ICMR/ICAR/NEET-PG/DST-INSPIRE/IRD/FITT Project details, if any)
Candidate with his/her own fellowship /institute assistantship

Role of Faculty Members involved:	
Supervisor-1	Prof. Dinesh will guide the student in the mechanical design, testing and simulation of the device in virtual and clinical environments.
Supervisor-2	Prof. Vijay Sharma will help in evaluating the drug delivery systems and the validation of devices in clinical settings