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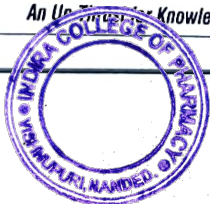
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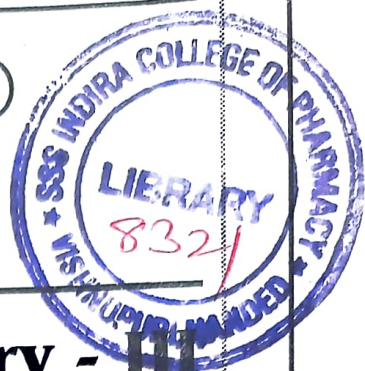
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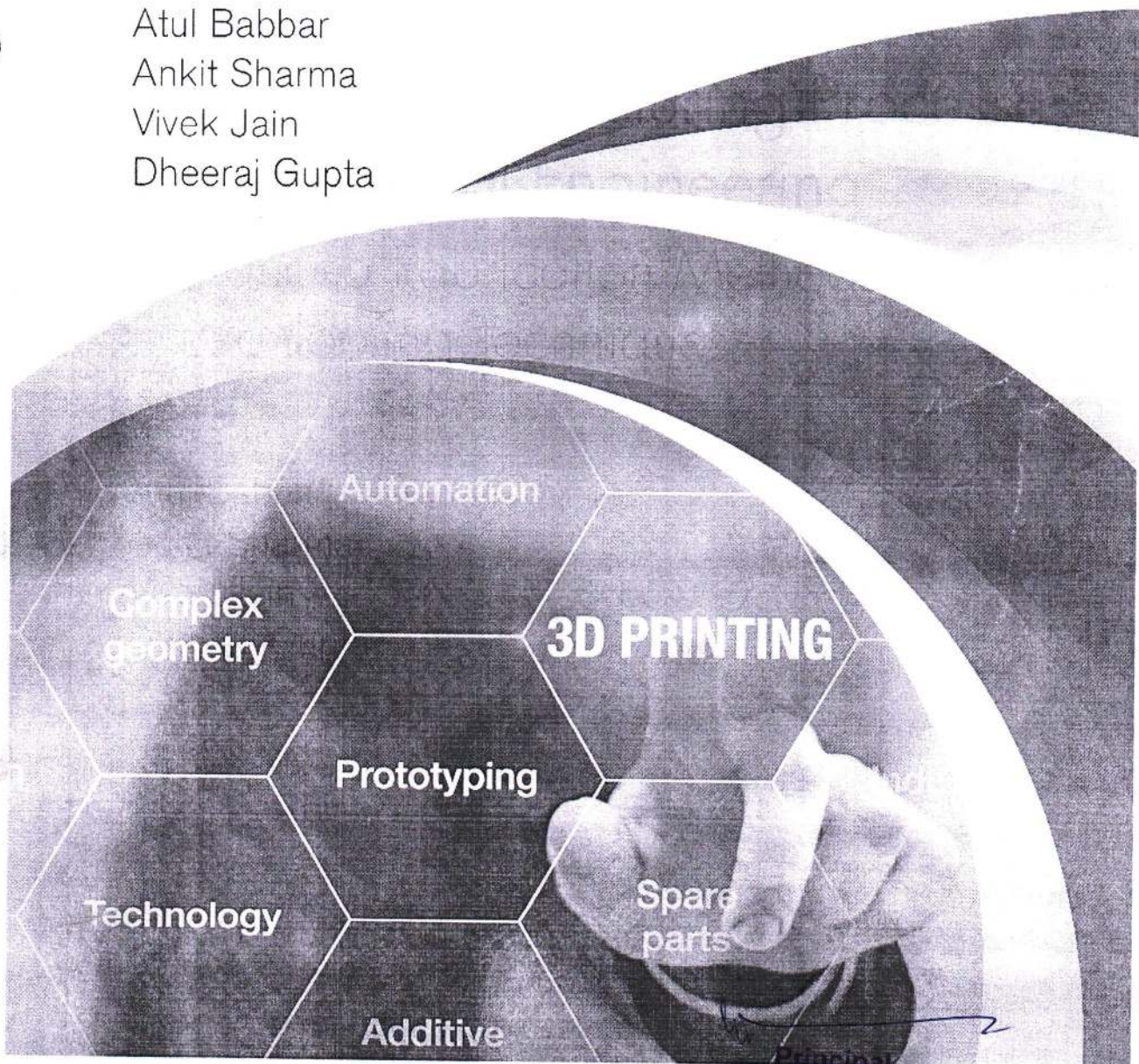
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# Additive Manufacturing Processes in Biomedical Engineering

## Advanced Fabrication Methods and Rapid Tooling Techniques

EDITED BY

Atul Babbar  
Ankit Sharma  
Vivek Jain  
Dheeraj Gupta



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# 1 Recent Advancements of Additive Manufacturing for Patient-Specific Drug Delivery

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## ABBREVIATIONS

3DP Three dimensional printing; 4DP Four dimensional printing; AM Additive manufacturing; API Active pharmaceutical ingredient; ASTM American Society for Testing and Materials; CAD Computer-aided design; CBER Center for Biologics Evaluation and Research; CDRH Center for Devices and Radiological Health; CLIP Continuous layer interface production; DED Directed Energy Deposition; DLP Digital light processing; DMLS Direct metal laser sintering; DOD drop-on-demand; EBM Electron beam melting; EC Ethylcellulose; FDCT fixed-dose combination therapy; FDM Fused deposition modeling; GMP Good manufacturing practice; LOM Laminated object manufacturing; MEMS Micro-electro-mechanical system; MIT Massachusetts Institute of Technology; MJ Material jetting; NHS National Health Service; NIL Nanoimprint lithography; OVJP organic vapor jet printing; PAM Pressure-assisted microsyringe; PAT Process analytical technology; PAT process analytical technology; PEG Polyethylene glycol; PEO Polyethylene oxide; PoC Point of care; PLGA polylactide-co-glycolide; PVA Polyvinyl alcohol; SDL Selective deposition lamination; SHS Selective heat sintering; SLM Selective laser melting; IJP Inkjet printing; SLA Stereolithography; SLS Selective laser sintering; SMP shape memory polymer; TIJ thermal inkjet; UAM ultrasonic additive manufacturing; US FDA U.S. Food and Drug Administration

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**99. GREEN SYNTHESIS OF  
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**100. PHYTOCHEMICAL STUDIES OF  
CLOVE**

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# 1. RECENT THERAPEUTIC APPROACHES FOR TREATMENT OF ALZHEIMER'S DISEASE

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**Abstract:** Alzheimer's disease (AD) is a progressive neurodegenerative disease and accounts for most cases of dementia. The prevalence of AD has increased in the current rapidly aging society and contributes to a heavy burden on families and society. Despite the profound impact of AD, current treatments are unable to achieve satisfactory therapeutic effects or stop the progression of the disease. Finding novel treatments for AD has become urgent. In this paper, we reviewed novel therapeutic approaches in five categories: anti-amyloid therapy, anti-tau therapy, anti-neuroinflammatory therapy, neuroprotective agents including N-methyl-D-aspartate (NMDA) receptor modulators, and brain stimulation. The trend of therapeutic development is shifting from a single pathological target to a more complex mechanism, such as the neuroinflammatory and