#### FOREST RESEARCH INSTITUTE DEEMED TO BE UNIVERSITY

(Indian Council of Forestry Research and Education)
P.O. IPE Kaulagarh Road, Dehradun-248195, Uttarakhand, India
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If you are not willing to risk the usual, you will have to settle for the ordinary.



Driving progress

Fostering innovation

This Brochure Was Designed By – Sh. Amol K.Raut (Artist, FRI), Diptikona Mondal, Isha Rawat, Ritam Basu, Dr. Shweta B. Kukreti (Jr. Consultant ) and Dr. Shailendra Kumar (Placement officer, FRIDU)

M.Sc. WOOD SCIENCE & TECHNOLOGY (2017-19)







The Forest Research Institute established in 1906 is a pioneer institution in the field of forestry education and research. It has been offering a 2 year Masters program in Wood Science and Technology since the academic year 1996. The program deals with wood as a material besides covering the processing and manufacturing technologies for wood and wood based products.

The intake of students is based on their performance in an all-India entrance examination conducted by the Forest Research Institute Deemed to be University every year. Excellent infrastructure, state-of-the-art laboratories, highly qualified, motivated and committed faculty members go a long way in ensuring the overall development of the professionals emerging from this university.

The curriculum and syllabi are regularly upgraded with the help of experts. The students use the vast knowledge and expertise of FRI, a name synonymous with the development in forestry, wood science and technology in South Asia. The course prepares professional leaders to fulfill the demands in wood based industries and research organizations. It is therefore, no wonder that all of our students are part of some of the leading wood based industries and research organizations within our country and abroad. On behalf of the Institute, I invite corporate, business organizations and other employers to organize Campus Recruitment Programme in our university and access the caliber of our budding wood technologists who are among the best in Asia. I am confident that a visit to our Institute will be mutually beneficial.

I wish all the students of M.Sc. Wood Science and Technology the very best in their career. I am sure that they will make significant progress in their profession.

Dr. Savita, IFS

Director FRI
Vice Chancellor
FRI Deemed to be University
Dehradun



Forest Research Institute, Dehradun has its roots in the erstwhile Imperial Forest Research Institute (IFRI) started in 1906. The institute was established to organize and lead forestry research activities in South Asia. The institute also administered training to forest officers and forest rangers in the country. After independence, IFRI was aptly renamed as Forest Research Institute and Colleges. After successfully playing the lead role in forestry sciences, in 1988 this forestry research setup was reorganized to meet the new dimensions of forestry research and education in the country. The FRI and its research centers were brought under the administrative umbrella of the newly created Indian Council of Forestry Research and Education (ICFRE) under the Ministry of Environment, Forest and Climate Change (MoEFCC), Government of India.

To fulfill the needs of forestry and environment professionals in the country, FRI was conferred the status of deemed to be university in 1991 by the University Grants Commission. Among the many research divisions under FRI, Forest Products Division deals with wood based research.





FRI Deemed to be University offers two year M.Sc. Programme in Wood Science and Technology. This prestigious programme is one of its kind in India and easily compares with best courses in related fields throughout the world. M.Sc. in Wood Science and Technology is aimed at learning sound principles and technologies related to wood as industrial material.

Besides providing basic knowledge on physics, chemistry, mechanics and engineering of wood, the programme provides detailed exposure on wood ultrastructure and its effect on wood properties, basics of wood biodegradation and its prevention, special processing techniques for satisfactory utilization of fast growing plantation timber, both as directly sawn solid wood as well as reconstituted engineered structured timber and products such as plywood, particle board, utilization of lignocelluloses and agro residues for reconstituted product, laminated wood, LVL, panel strand lumber etc., which have been recently proved to be officious substitutes for traditional forest products. Class room teaching is adequately supplemented with laboratory work including practicals in various techniques on pilot plants, with which the institute is uniquely equipped. Excursions to various wood based industries in India provides onsite exposure to the students. Students are also provided with opportunities to undergo a short duration industrial attachment and thesis work of industrial interest in FRI laboratories and pilot plants.

#### **COMPUTER APPLICATION**

- MS office
- Auto-cad

#### **WOOD CHEMISTRY**

- Chemical constituents of wood
- Extraction of chemicals from wood
- Industrial utilization of wood extractives
- Spectroscopic techniques

#### **WOOD PHYSICS**

- Physical properties
- Thermal properties
- Electrical properties
- Acoustical properties
- Comparison of properties of solid wood with composite wood
- Thermodynamic aspects of wood
- Flow of water in wood
- Ultra structure and anisotropy

#### **SAWMILLING AND SAW DOCTORING**

- Saw milling equipment
- · Economics of sawn material
- Saw blade doctoring

#### **WOOD ANATOMY**

- Microscopic features of important timber species
- Wood quality in plantation grown timber
- Anatomical and utilization aspects of fibrous material
- Wood identification

#### TIMBER ENTOMOLOGY AND MICROBIOLOGY

- Termites
- Insect and pest control methods
- Degradation of wood

#### STATISTICS AND RESEARCH METHODS

- Statistical quality control techniques
- Design of experiments

#### **TIMBER MECHANICS**

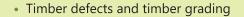
- Strength properties of different wood species
- Standard tests on timber specimen











#### **WOOD PRESERVATION**

- Durability of wood, wood preservatives and testing of efficiency
- Treatment methods. Preservation plant
- Economics of preservation
- Fire retardants

#### **COMPOSITE WOOD**

- Adhesive science and their preparation, types of adhesives
- Manufacture of plywood, particle board, LVL etc.
- Testing of wood composite boards

#### **WOOD SEASONING**

- Seasoning defects and their control
- Special drying techniques Seasoning schedules, kiln design & principle
- Wood seasoning psychrometry

#### TIMBER ENGINEERING

- Timber components for structural purpose
- National building codes

#### **WOOD WORKING AND FINISHING**

- Mill operations and wood working machines
- Wood machining defects
- Finishing operations and equipments
- Performance tests on wood finishes

#### **HUMAN RESOURCE MANAGEMENT**

- Management principles
- Principles and functions of a manager, leadership qualities
- Organizational behavior, industrial relations

#### MARKETING AND ENTERPRISE DEVELOPMENT

- Role of marketing in open market economy
- Marketing functions, competition and credit management
- Entrepreneurship development, role pf private sector

## TWO WEEKS STUDY TOUR TO VARIOUS WOOD BASED INDUSTRIES

ONE MONTH INDUSTRIAL ATTACHMENT

**MASTER'S THESIS** 









# EXPOSURE TO THE FIELDS!

The students of Forest Research Institute Deemed to be University learn not only the theories behind the behavior of wood, but also acquires a broad understanding of the various aspects of industrial processing through the various disciplines within the campus as well as through industrial visits and attachment.

## DISCIPLINES OF WOOD SCIENCE & TECHNOLOGY

Wood Seasoning
Wood Working and Finishing

**Wood Preservation** 

**Timber Engineering** 

**Timber Mechanics** 

Wood Chemistry

**Composite Wood** 

**Entomology and Pathology** 

**Forest Certification** 

Intellectual Property Rights







The students have been regularly taken to various industries throughout India, such as in Jaipur and Jodhpur (Rajasthan), Delhi and NCR, Gandhidham and Ahmedabad (Gujrat), Mumbai (Maharashtra) and so on.

#### **INDUSTRIAL ATTACHMENTS**

• M/s C.L. Gupta Exports Ltd., Moradabad, U.P.-244221

• M/s Uttarakhand Bamboo & Fiber Development Board, Dehradun, U.K.-248006

• M/s Evergreen International Ltd., Gurugram, Haryana-120001

• M/s Nu Wood Industries, Dehradun, U.K.-248001

M/s Marque Impex, Moradabad, U.P.-244001

M/s Sumitra Woodcraft (P) Ltd., Ghaziabad, U.P.-201001

• M/s Merino Laminates, Ghaziabad, U.P.-245101

M/s NCL Industries Limited, Sirmour, Himachal Pradesh-173025

M/s Varanasi Overseas Pvt. Ltd., Haryana - 121005

M/s Rushil Decor Ltd., Chickmagaluru, Karnataka -577101

• M/s Greenlam Industries Limited, New Delhi- 110001

• M/s D.S. Doors India Ltd., Faridabad, Haryana-121003

M/s Designco, Moradabad, U.P.-244001

• M/s Dileep Industries Pvt. Ltd, Jaipur, Rajasthan-302018

• M/s Inn Trading Pvt. Ltd, Churu Rajasthan-331021

M/s S.A. Plywood Industries (P) Ltd, Coochbehar, W.B.-736146

M/s Tirupati Plywood Industries Pvt. Ltd, Coochbehar, W.B.-736146

• M/s Sun Art Exporters, Jodhpur, Rajathan-342001

• M/s Oriply Pvt. Ltd., Bhubaneswar, Orissa-752054

• M/s Kitchen Grace (India) Pvt. Ltd., Pune, Maharashtra-412105

M/s Durian Industries Ltd., Thane, Maharashtra-401404

• M/s Artasia, Jaipur, Rajasthan-302022

• M/s Evergreen International Ltd., Boranada, Rajasthan-342012

M/s Teekays Interior Solutions Pvt. Ltd., Bengaluru, Karnataka-56005

M/s Trevi Furniture Corp. Pvt. Ltd., Bengaluru, Karnataka-5600







## WHY YOU SHOULD HIRE OUR STUDENTS

- Our students are innovative and have the caliber to be effective leaders in the fields of wood science and technology
- They are capable of contributing to the world through excellence to serve as a valuable resource for wood industries
- Learning beyond the classroom- industrial attachments, multiple study tours and industrial visits, master's thesis, all provide a real world experience to the students and prepares them for a future career.

#### Few Industries in India and abroad where our Alumni are placed:

- M/s Rushil Decor Limited, Karnataka
- M/s Marque Impex, Uttar Pradesh
- M/s Vamani Overseas Pvt. Ltd., Haryana
- M/s Coast to Coast Designs (P) Ltd.,
   New Delhi
- M/s Heritage Creations, Haryana
- M/s Jaipur Crafts Pvt. Ltd., Rajasthan
- M/s TFT-The Forest Trust, New Delhi
- M/s Century Plyboards (I) Ltd., West Bengal
- M/s Goel Exports, Haryana
- M/s Designco, Uttar Pradesh
- M/s Stoneman Craft India Pvt. Ltd., Uttar Pradesh
- M/s Strategic Sourcing Solutions, Uttar Pradesh
- M/s Artasia, Rajasthan
- M/s Sarda Plywood Industries Limited, West Bengal
- M/s Bhandari Exports, Rajasthan
- M/s STC India, Haryana
- M/s Shree Mangalam Creation, Rajasthan
- M/s Spacewood Furnishers Pvt. Ltd., Maharashtra

- M/s Sudima Panels Co. Ltd., Vietnam
- M/s MGA International Pte Ltd., Malaysia
- M/s Sarda Plywood Industries Ltd., Gujarat
- M/s Quetzel Designs India Pvt. Ltd., Karnataka
- M/s Outlook International (India)
   Pvt. Ltd., New Delhi
- M/s Sun Art Exporters, Rajasthan
- M/s C.L. Gupta Exports Ltd., Uttar Pradesh
- M/s Flat World Source Inc., New Delhi
- M/s Aztec Shiva Exports Pvt. Ltd, Rajasthan
- M/s Hindware Home Retail Pvt. Ltd., Haryana
- M/s ARCL Organics Ltd., West Bengal
- M/s Punjab Plywood Industries, Haryana
- M/s Capsbury Limited, United Kingdom
- M/s FII Consulting India Pvt. Ltd., Maharashtra
- M/s A K Lumbers Ltd., New Delhi
- M/s Williams-Sonoma India Pvt. Ltd., Haryana



**ABHISHEK BADOLA** 

Graduation: B.Sc (PCM)

Area of Interest: Marketing and Merchandising, Product Designing, Manufacturing and Finishing of Solid Wood and Composite Wood products, R&D, Buying House, etc.

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#### **DHEERAJ DASAYA**

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#### **ISHA RAWAT**

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#### **STUDENT'S PROFILE (2017-19)**



#### **DIPTIKONA MONDAL**

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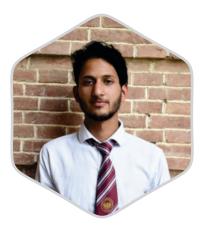
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#### **STUDENT'S PROFILE (2017-19)**



#### **MOHIT SHUKLA**

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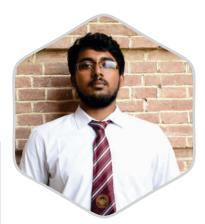
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**STUDENT'S PROFILE (2017-19)** 



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