NAAC GRADE A+ ACCREDITED UNIVERSITY

REVA UNIVERSITY
Bengaluru, India

Objective:
This in-house internship offers hands-on experience in crop production, focusing on agronomical methods, farm machinery operation, irrigation systems, and post-harvest management. Participants will develop practical skills in crop cultivation, advanced propagation techniques, and learn to manage farm operations efficiently from fieldwork to post-harvest handling.

Target Audience:
Undergraduate and postgraduate students in Agriculture, Mechanical engineering, Civil engineering, Biotechnology, Environmental Science, and related fields.

School of Civil Engineering

Department of Agricultural Engineering

Crop Production: Cultivation to post harvest management Internship

Registration Start Date: May 9, 2025 | Closing Date: June 9, 2025
Internship Start Date: July 15, 2025 | End Date: August 14, 2025
Duration: 54 Hours

Internship Objectives:

1. Learn agronomical techniques such as seed germination, grafting and advanced crop propagation methods.
2. Master farm machinery operation and maintenance, including tractor and equipment operation and maintenance.
3. Understand the operation and maintenance of irrigation systems to optimize water usage and ensure crop health.
4. Explore sustainable pest and disease management strategies to promote healthy crop growth.
5. Gain practical skills in post-harvest management, including storage, processing, and value addition to preserving crop quality and enhance marketability.

Learning Outcomes:

Participants will gain expertise in:

- Applying agronomical methods like grafting and seed germination for improved crop production.
- Operating and maintaining farm machinery, including tractors and related equipment.
- Managing irrigation systems for efficient water use and healthy crop growth.
- Implementing pest and disease management strategies for optimal crop yield.
- Mastering post-harvest management practices to maintain quality and extend the shelf life of crops.

Roles and Responsibilities

Student Interns

- Participate actively in all assigned tasks and training sessions.
- Adhere to deadlines and deliver quality work.
- Maintain professional behavior and communication.
- Faculty Mentors
- Provide guidance and technical support throughout the internship.
- Conduct regular progress reviews and offer constructive feedback.
- Evaluate final deliverables based on predefined criteria.
- Industry Partners (if applicable)
- Provide project briefs or problem statements.
- Offer mentorship or technical sessions as needed.

Assessment Criteria

Students will be evaluated based on:

- Attendance & Participation (20%)
- Hands-on Performance in all the Sessions (40%)
- Project / Case Study / Report Submission (20%)
- Final Practical Evaluation & Viva (20%)

Grading System (Outstanding to Fail):

Outstanding / Excellent (O or A+)

- Percentage: 90% and above
- Grade Point: 10.0 (or as per institution's scale)
- Description: Exceptional performance, demonstrating deep understanding and mastery of the subject.

Very Good (A)

- Percentage: 80% - 89%

▪ Grade Point: 9.0
▪ Description: Excellent performance with minor errors or gaps in knowledge.
Good (B+)
▪ Percentage: 70% - 79%
▪ Grade Point: 8.0
▪ Description: Above-average performance with a good understanding of the subject.
Satisfactory (B)
▪ Percentage: 60% - 69%
▪ Grade Point: 7.0
▪ Description: Meets the minimum requirements with an average understanding of the subject.
Fair (C+)
▪ Percentage: 50% - 59%
▪ Grade Point: 6.0
▪ Description: Adequate performance but with noticeable gaps in knowledge or skills.
Pass (C)
▪ Percentage: 40% - 49%
▪ Grade Point: 5.0
▪ Description: Barely meets the passing criteria with limited understanding of the subject.
Fail (F)
▪ Percentage: Below 40%
▪ Grade Point: 0.0
▪ Description: Does not meet the minimum requirements to pass the course.

Certification & Credit Exemption

Upon successful completion, students will receive:
• Certificate of Completion from the Department of Agricultural Engineering, REVA University.
• Academic Credits, with an exemption from one elective course (subject to university regulations).

Modules Overview:

1. Land Preparation, Sowing, and Germination

Objective: To understand the significance of proper land preparation and sowing techniques in achieving optimal germination and plant establishment.

Outcome: Familiarity with ploughing, levelling, and seedbed preparation; correct seed selection and sowing depth; improved germination rates and crop stand through effective soil and seed management practices.

2. Plant Propagation and Weed Control Techniques

Objective: To gain knowledge of plant propagation methods like grafting and the role of mulching in weed control and moisture conservation.

Outcome: Enhanced skills in grafting for healthy plant multiplication; understanding of organic and synthetic mulching materials to suppress weeds and improve soil health, leading to better crop yield and reduced herbicide usage.

3. Tractor Operation and Routine Maintenance

Objective: To familiarize trainees with basic tractor systems, operational procedures, and routine maintenance practices.

Outcome: Improved understanding of tractor components, enhanced machine longevity, and reduced downtime through proper maintenance practices such as oil check, filter cleaning/replacement, battery inspection, and tire pressure management.

4. Safe Handling of Farm Machinery

Objective: To educate on safety precautions and risk management while operating or working near farm machinery including tractors, weeding tools, and other implements.

Outcome: Development of a safety-first mindset to minimize injuries, understand proper clothing/PPE usage, machine startup/shutdown procedures, and safe transportation and storage of tools.

5. Operation and Maintenance of Plant Protection Equipment

Objective: To train in the proper usage, calibration, and maintenance of plant protection equipment such as knapsack and boom sprayers.

Outcome: Efficient and safe pesticide application practices, improved crop protection, and prevention of equipment clogging or chemical hazards through proper cleaning and maintenance techniques.

6. Basics of Irrigation and Crop Water Requirements

Objective: To introduce various irrigation techniques and understand the relationship between crop growth stages and their water requirements for efficient irrigation planning.

Outcome: Comprehensive understanding of surface and pressurized irrigation systems, and the ability to estimate crop water requirements and develop stage-wise irrigation schedules.

7. Drip Irrigation Systems

Objective: To study the components, design, and functioning of drip irrigation systems, including fertigation and maintenance.

Outcome: Practical knowledge of drip system layout, operation, maintenance practices, and troubleshooting common issues.

8. Soil-less Culture (Hydroponics)

Objective: To explore hydroponic cultivation techniques as an alternative to soil-based farming, focusing on system design and nutrient management.

Outcome: Familiarity with hydroponic system setup, nutrient solution preparation, and monitoring plant growth in soil-less conditions.

9. Preparation of Mango Jam

Objective: Learn the process of mango jam preparation and the role of key ingredients like sugar, pectin, acid, and preservatives.

Outcome: Participants will develop the ability to prepare mango jam using hygienic practices, understand the functions of ingredients such as pectin, acid, and sugar in achieving proper consistency and preservation, and gain skills in evaluating sensory quality as well as labeling for effective storage and marketing.

10. Preparation of Ghee

Objective: Understand traditional and scientific methods for making ghee from milk or cream.

Outcome: Learners will acquire step-wise skills in ghee preparation with focus on hygiene and temperature control, understand processes like fat clarification and moisture removal, and be able to identify quality indicators such as color, aroma, and texture, along with knowledge of storage methods and opportunities in small-scale processing.

11. Preparation of Ice Cream

Objective: To learn and apply the process of making ice cream using basic ingredients and proper freezing techniques while understanding the role of each ingredient in texture and flavor development.

Outcome: Participants will be able to prepare a batch of smooth and creamy ice cream, demonstrating proper mixing, flavouring, and freezing methods, and evaluate the final product based on taste, texture, and consistency.

Registration Process

1. Visit the official website of REVA University (www.reva.edu.in).
2. Navigate to the Agricultural Engineering department's internships section.
3. Fill out the online registration form with necessary details.
4. Pay the registration fee of INR 2000/-
5. Confirmation email will be sent upon successful registration.

Registration Link: https://forms.office.com/r/1MZmz3C23V
Payment link : https://www.reva.edu.in/payment

Contact Information

Coordinator: Dr. Shashikumar | Email: shashikumar.m@reva.edu.in | Phone: 9113019074
Note: Seats are limited to 30 participants to ensure hands-on training and individualized mentoring. Early registration is encouraged.

Assessment

Assessment Project 1: Land Preparation and Germination Efficiency
Objective: Evaluate the impact of land preparation techniques on seed germination and early crop establishment.
Tasks: Prepare a seedbed using proper ploughing and leveling methods. Sow seeds with correct spacing and depth. Monitor germination rate over 7–10 days. Compare results across different seedbed treatments.
Deliverables: A report on land preparation methods and their effects on germination. Germination data with photos and graphical analysis. Recommendations for best practices in seedbed preparation.

Assessment Project 2: Propagation and Mulching for Weed Control
Objective: Demonstrate plant propagation techniques and evaluate the role of mulching in weed suppression and moisture retention.
Tasks: Perform grafting/budding on selected plant species and document the process. Apply different mulching materials (organic/synthetic) to a crop plot. Measure weed count and soil moisture over time. Analyze propagation success rate and weed control efficiency.
Deliverables: Photo documentation of propagation techniques. Weed suppression and moisture data comparison.
A summary report with findings and conclusions.

Assessment Project 3: Tractor Driving, Operation, and Maintenance
Objective: Assess the ability to safely operate a tractor and perform routine maintenance for optimal machine performance and longevity.
Tasks: Identify key tractor components (engine, hydraulics, transmission, etc.). Demonstrate safe tractor driving — starting, stopping, turning, and gear shifting. Perform routine maintenance: engine oil check, filter cleaning, tire pressure check, battery inspection, and lubrication. Recognize common faults and describe preventive maintenance strategies.
Deliverables: Tractor operation checklist and driving evaluation. Maintenance logbook with actions performed and observations. A brief report highlighting key learning points and safety precautions followed.

Assessment Project 4: Safe Use of Machinery and Plant Protection Equipment
Objective: Demonstrate safe handling of farm machinery and proper calibration and maintenance of sprayers.
Tasks: Demonstrate start-up and shut-down procedures for any one machinery tool (e.g., tiller or weeder). Show correct PPE usage and explain risk mitigation steps. Calibrate a knapsack or boom sprayer. Practice cleaning and storing spraying equipment.
Deliverables: Safety protocol checklist with observations. Video or photo evidence of machinery handling and sprayer calibration. Brief report on safety hazards and prevention.

Assessment Project 5: Drip Irrigation and Hydroponics Evaluation
Objective: Evaluate the functionality and efficiency of drip irrigation and hydroponic systems.
Tasks: Set up or inspect a drip irrigation unit and check for clogs or leaks. Record emitter flow rates and assess uniformity. Prepare a basic hydroponic nutrient solution and monitor plant response. Compare soil vs. hydroponic growth in early stages.

Deliverables: Drip system maintenance log and flow rate data. Hydroponic growth observations. Short comparative report with tables/graphs.

Assessment Project 6: Post-Harvest Processing and Quality Analysis
Objective: Prepare mango jam, ghee, and ice cream while maintaining hygiene and assessing product quality.
Tasks: Prepare jam, ghee and ice cream using given recipes under hygienic conditions. Evaluate color, aroma, texture, and taste of final products. Demonstrate proper labeling and storage of processed items. Analyze freezing process for clear ice production.
Deliverables: Product samples (if applicable) with labeled packaging. Sensory evaluation sheet and photos of each stage.
A brief report summarizing steps, ingredient functions, and quality assessment.

Assessment Project 7: Final Integrated Mini-Project
Objective: Integrate concepts from all modules into a comprehensive crop-to-harvest workflow.
Tasks: Choose a crop and design a complete plan: land preparation, propagation, irrigation, weed control, and protection.
Include harvesting method and a basic post-harvest processing plan (e.g., storage or value addition).
Present a timeline with inputs, tools, and expected outcomes.
Deliverables: A full project report with diagrams, schedules, and process flows. Presentation slides summarizing the entire workflow. Peer-reviewed feedback and instructor evaluation.

These projects are designed to align with the internship objectives and provide participants with hands-on experience while assessing their understanding of crop production principles. Each project can be tailored further based on the specific task and model available for the internship.

Internship Schedule

Module	Duration	Content Overview
Registrations	May 9 to June 9, 2025	Confirmed participation
Pre-requisites, Orientation and field demos	July 15, 2025 (09:00AM to 12:00PM) Daily 3 hours	3 Hours of Training: Introduction to agricultural field and food processing lab, safety protocols in using farm machineries, and equipment handling.
Module 1: Land Preparation and Crop Establishment	July 16 to 18, 2025 (09:00AM to 12:00PM) Daily 3 hours	9 Hours of Training: • Techniques for ploughing, leveling, and seedbed preparation. • Selection of suitable seeds and determination of ideal sowing depth and spacing. • Factors affecting germination and early crop stand establishment. • Role of land preparation in early weed control.
Module 2: Plant Propagation and Weed Management	July 21 to 23, 2025 (09:00AM to 12:00PM) Daily 3 hours	9 Hours of Training: • Hands-on training in plant propagation techniques such as grafting, budding, and cutting. • Selection of scion and rootstock for healthy multiplication. • Introduction to mulching materials and methods for effective weed suppression and moisture conservation. • Integration of propagation and weed control in sustainable farming practices.

Module 3: Tractor Driving, Operation, and Maintenance	July 24 to 26, 2025 (09:00AM to 12:00PM) Daily 3 hours	9 Hours of Training: • Basic components and systems of a tractor (engine, hydraulics, transmission). • Safe tractor driving techniques and operational controls. • Routine maintenance: engine oil, filters, tire pressure, battery, and lubrication. • Troubleshooting and preventive maintenance practices to reduce downtime.
Module 4: Safe Handling of Farm Machinery	July 28 to 30, 2025 (09:00AM to 12:00PM) Daily 3 hours	9 Hours of Training: • General safety guidelines for operating and maintaining farm equipment. • Use of personal protective equipment (PPE) and safe clothing practices. Start-up/shut-down protocols, handling of sharp tools and rotating parts. • Safe use and storage of implements like weeders, power tillers, and sprayers.
Module 5: Irrigation Techniques and Water Management	July 31 to August 1, 2025 (09:00AM to 12:00PM) Daily 3 hours	6 Hours of Training: • Overview of surface, drip, and sprinkler irrigation systems. • Estimation of crop water requirements based on growth stages. • Scheduling irrigation for efficiency and yield improvement. • Introduction to Fertigation techniques.
Module 6: Drip Irrigation and Hydroponic Farming	August 4 to 6, 2025 (09:00AM to 12:00PM) Daily 3 hours	• Design and layout of drip irrigation systems. • Maintenance, cleaning, and troubleshooting of emitters and filters. • Basics of hydroponics: system types, nutrient solution preparation, and pH/EC management. • Monitoring plant growth in soil-less culture for higher efficiency
Module 7: Food Processing and Value Addition	August 7 to 9, 2025 (09:00AM to 12:00PM) Daily 3 hours	9 Hours of Training: • Preparation of mango jam: hygiene, ingredient functions, consistency, and preservation. • Ghee production: traditional methods, clarification process, quality indicators, and packaging. • The process of making ice cream, basic ingredients, demonstrating proper mixing, flavoring, and freezing methods, and evaluate the final product based on taste, texture, and consistency • Quality control, sensory evaluation, and labeling for processed food products.
Final Project and Evaluation	August 11 to 14, 2025	Comprehensive project integrating earned concepts; final assessment.
Module 4: Safe Handling of Farm Machinery	July 28 to 30, 2025 (09:00AM to 12:00PM) Daily 3 hours	9 Hours of Training: • General safety guidelines for operating and maintaining farm equipment. • Use of personal protective equipment (PPE) and safe clothing practices. Start-up/shut-down protocols, handling of sharp tools and rotating parts. • Safe use and storage of implements like weeders, power tillers, and sprayers.

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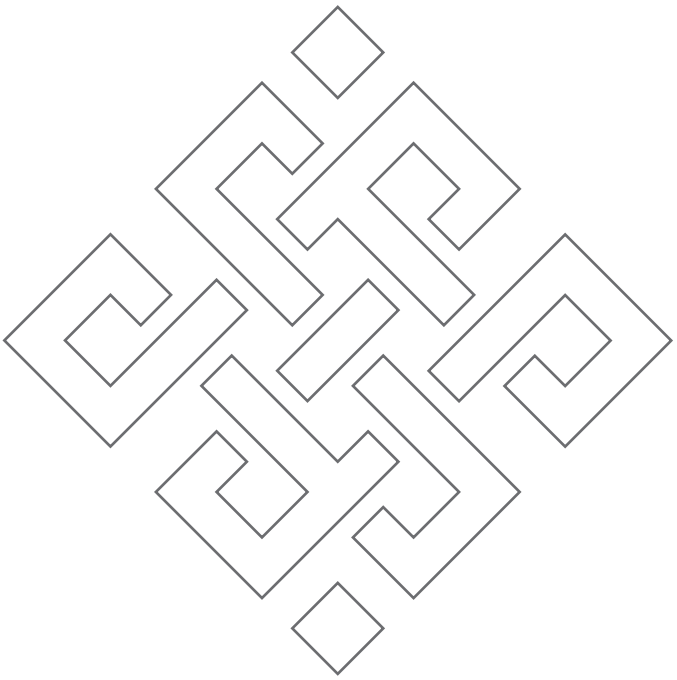

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