

Minutes of the Meeting of

First Board of Studies (BoS) Meeting of Agricultural and Horticultural Sciences, Vignan's Foundation for Science, Technology and Research (Deemed to be University)

19th June, 2021
(In Online Mode)

The First Board of Studies Meeting of Agricultural and Horticultural Sciences, VFSTR was conducted on 19.06.2021 between 9.00 am to 1.00 pm in Online Mode under the Chairmanship of Dr. T. Ramesh Babu, Director, Agricultural and Horticultural Sciences (AHS), VFSTR & Chairperson, Board of Studies. Sri N. Narayana Rao, HoD, Applied Engineering, VFSTRU and Member Secretary, BoS, welcomed the Members and Special Invitees of Board of Studies and officials of the University.

Dr. T. Ramesh Babu welcomed and introduced the Members and Special Invitees of Board of Studies and University dignitaries by depicting their respective academic and professional profile.

Commodore Dr. M.S. Raghunadhan, Registrar, VFSTR, welcomed the Members of BoS and emphasised the following points to consider while deliberating the agenda.

1. Adhering to ICAR syllabus, value addition courses to make the students ready for the industry and job may be considered.
2. Similar to MOOCs in Engineering courses on swayam platform, , explore the feasibility of courses from e-portal (e-krishi siksha) with due credit hours
3. Extra mural lectures on specialized topics for the benefit of the students.

Later the following Members of BoS, Special Invitees and other participants discussed the listed agenda items threadbare.

BoS Members and Special Invitees

1.	Prof. T. Ramesh Babu, Director, Agricultural and Horticultural Sciences, VFSTR
2.	Dr. M. Malakondaiah, Advisor, VFSTR
3.	Sri VR (Ram) Koundinya, Management Consultant
4.	Dr. K. P. Vidhu , Joint Director (PHE) & Registrar (I/c) NIPHM, Hyderabad
5.	Dr. T. Prameela Devi, Professor (Principal Scientist, Plant Pathology) (ARI, New Delhi)
6	Sri. Benjamin Raja, Founder and CEO Farmagain, Coimbatore
7	Dr. A. Ashok Kuamr, Principal Scientist – Plant Breeding & Product Placement Lead-Asia, Crop Improvement Research Program Asia, ICRISAT, Hyderabad

8.	Dr. Parimi Srinivas, Regional Resistance Management Lead-Asia Pacific, Bayer Crop Science, Singapore
9.	Dr. K.P.C Rao, Honorary Fellow, Innovation Systems for the Dry lands (ISD) International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) Hyderabad.
10.	Dr. B. Gajendra Babu, Agri-Entrepreneur, Founder- Chloropy Technologies, Hyderabad
11.	Dr. N. Sreerama Reddy, Former Dean of Agriculture (ANGRAU)
12.	Prof. P.B. Kavi Kishore, Research Advisor, Dept. of Biotech, VFSTR
13.	Prof. D. Vijaya Ramu, Dean Academics & Professor, Biotech, VFSTR
14.	Prof. D. Venkatesulu, HoD, Computer Science & Engineering, VFSTR
15.	Dr. Y. Vara Prasad, Assistant. Director, AHS, VFSTR
16.	Mr. N. Narayan Rao, Head, Applied Engineering, VFSTR

Other participants

1.	Dr. Phani Kumar, Computer Science Engineering, VFSTR
2.	Dr. Ayyanna, Applied Engineering, VFSTR
3.	Sri G. Aditya, Applied Engineering, VFSTR
4.	Sri M. Lokesh, Applied Engineering, VFSTR

Agenda Items

1. Reshaping the course content (Syllabus) of 4 Year B.Sc. (Hons.) Agriculture course strictly adhering to the ICAR 5th Deans' Committee Report
 2. Academic Regulations, Examination System and Grading of 4 Year B.Sc. (Hons.) Agriculture Programme.
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Agenda Item 1 : Reshaping the course content (Syllabus) of 4 year B.Sc. (Hons.) Agriculture course strictly adhering to the ICAR 5th Deans' Committee Report

The suggestions / opinions /remarks of the participants Department wise are furnished below.

Agricultural Economics

- Sri Koundinya suggested (i) to include “Read and analyse “Economic Survey presented to Parliament” every year which contains lot of data, analytics” in Practical Exercises (ii) In Course Number 342 : Unit 1 : the heading of Organizational Behaviour is not relevant with reference to the content and advised to verify and (iii) Insurance : In addition to crop insurance, advised to include livestock insurance (only 6 % livestock is insured in India)
- Dr. Malakondaiah opined that (i) e-NAM : Theory is of no use and hence advised to arrange visit to Mirch yard and other markets (it is already included : 8th and 9th practical exercise in C.No.241: Visit to local markets); (ii) He also raised the issues of Banking and finance, ITC Food processing, Food Processing Economics (Value addition is important). Advised to include Food Processing Economics; and (iii) to give importance to Self-Study Material. Let the course be designed with (i) Self-study material (ii) Teaching component and (iii) Practical.
- In support of this Dr. Parimi Srinivas reacted and opined that as course content is huge, as Dr. Malakondaiah sir suggested, better to split the course in to three parts as mentioned above.
- Dr. Malakondaiah suggested to utilize the advantage of teaching faculty of Nagarjuna University to teach basic Economics. He also Suggested the reference of Satish Aradhula, Professor of Economics at Arizona University, to contact and take his expertise during his visit.
- Dr. Ashok Kumar raised the issue of Supply Food Chain. If it is not covered, felt need to include
- Dr. KPC Rao expressed doubt regarding the background of students to understand macroeconomics and advised to assess the capacity of the student to expose to Macroeconomics. To this query Sri Koundinya responded that Science Students will have less exposure to Economics, however it is essential (he experienced this problem when he joined in PGDM, IIM, Ahmedabad after B.Sc. (Ag.) and hence Macroeconomics though difficult, must be dealt in a way to make it understandable.

Agricultural Extension

- Regarding C.No. 291, the expert added almost all latest electronic gadgets to cover in this course. I expressed my opinion that these many aspects in one course may not be appropriate and further in Extension, faculty will concentrate on the application aspect and demonstration of technologies using gadgets. Hence to deal basic information of these gadgets may not be possible. Preliminary information on these aspects is not sufficient and hence sought the opinions of the members.

- Dr. Ashok Kumar opined in similar way that dealing all these aspects at one place will be difficult. However, he appreciated the expert for having included all the essential components which will make the students ready for future. Further he opined those aspects like phenotyping, robotics, AI may be dealt by Physiology, sensors and other aspects in Agronomy and hence distribute across the courses.
- Dr. Kavi Kishore expressed that most of these are out of place in Agricultural Extension, some of them to be taken to Agricultural Informatics, Computer Science and endorsed the opinion of Dr. Ashok and suggested that the basics of all these may be taught. At this point Dr. Vijay Ramu responded stating that it may be offered as Specialised course considering as Value added course either as non-credit or no-gradual course. In the Agricultural extension course only application of all these gadgets can be considered.
- Sri Koudinya also expressed that these aspects are required and endorsed the opinions of other BoS members. Dr. Benjamin also of the same opinion and advised to consider as elective course or as projects.
- Dr. Venakatesulu responded and informed that they Identified three courses keeping domain subject into consideration to solve agricultural operations using computer science as an applied tool. Proposed Python programming, a 4-credit course, (to process the volumes of the data that is captured). He requested Dr. Phani of CSE Department to respond.
- Dr. Phani informed that considering Decision making in disease detection, data collection through various sensors, and to understand the patterns involved in like severity and Precision Agriculture, planned three courses; (i) Python Programming (Data collection engine as well as user interfaced design, which requires statistics background and hence suggesting (ii) Statistics methods with Visualization using python programme (creation of histograms, heat maps etc.), course on (iii) Machine learning (to understand the basic process involved in the conversion of system as automated or semiautomated system). Further suggested audit course on AI.
- Dr. Phani concluded saying that Python Programming will help to know how sensors work and how to make use of sensors and also to design and demonstrate the decision making system, secondly the Visualisation and statistics helps to understand path analysis and finally machine learning to make decision making system.
- At this point Dr. Kavi Kishor raised the importance of introducing R language also to analyse the data better, for which Dr, Phani opined that Python 2.7 version is drastically improved version and hence the R language aspects also can be done with this python programme also. Dr. Kavi Kishor agreed. Dr. Phani further stressed that if Agricultural students have trouble in understanding python, then R language will be chosen because ease of coding is easy with R programming. However other subjects like machine learning can not be realized with R programming.

- Dr. Parimi Srinivas expressed that apart from Crop Management, Disease and pest identification and management, other aspect of Phenotyping (which Ashok also mentioned) shall be taken into account. All these courses suits, but not as theoretical driven but exposure driven and in practical hands-on mode.
- Dr. Vidhu sought clarification of credit load, Dr. Phani responded that Python course will be as 3 + 1, 4 credit course. Dr. Vidhu proposed bifurcation of course based on the interest of the student after second year to chose interesting course. Dr. Phani responded that due to this reason only they designed these three abstract level courses to give abstract knowledge with hands-on skills.
- Finally Dr. Phani emphasized that the following five aspects the student will learn both in theoretical and practical approach.
 - 1. Data Collection devices
 - 2. How to analyse the data
 - 3. How to classify the data
 - 4. How to cluster the data
 - 5. Basic processes and methods to follow decision making
- Regarding requirement of Statistics knowledge, I proposed to review the existing course on ICAR pattern which has been reshaped to little extent by Dr. Varma so that if any essential aspects to cover can be included.
- Projected the content of existing Statistics course. Dr. Phani said that already they formulated the course on Statistics and Visualisation which may be sent to BoS members for suggestions.
- Dr. Ashok felt that students should not be burdened with this new subject, more so they should be taught on application side. Sri Benjamin Raja opined that even CSE and IT graduates are taking one year time to understand in the field after their graduation and hence suggested to bifurcate in to Core Agriculture and Applied Aspects.
- Looking at the course content of Existing Statistics, Dr. Kavi Kishor asked Dr. Phani that can the student write simple algorithm with this knowledge.
- Dr. Vidhu responded and requested to make it an activity base.

Entomology

- Dr. Parimi Srinivas presented.
- Advised to include chapter on Mode of Action based labelling of pesticides in C.No.331 as Elective course is optional.

- Suggested to include Insecticide resistance monitoring / detection and management and New genetic Control methods. Also emphasised the need to include chapter on formulation technology as lot of new formulations are in use.
- Regarding transgenic crops, if not covered elsewhere to be considered.
- Dr. Vijay Ramu while appreciating the course content requested to mention specifically Bt Cotton in transgenics part.
- Ashok expressed that if students are eligible for higher studies after graduation these aspects will certainly be useful
- Sri Koundinya enquired regarding coverage of household pests, which is covered under urban / domestic entomology.
- My self proposed the need to include sanitary and Phytosanitary issues keeping pesticide residues as a contaminant in International trade as per WTO guidelines. After thorough discussion by Dr. Srinivas, Sri Koundinya and Sri Benjamin, decided to include in Economics trade part.
- Regarding increase of one credit proposal by Srinivas for the 231 course, expressed inability to consider due to the existing credit load of 183 credits and planning to have additional 3 to 4 credits towards Computer science gradial mandatory course. Decided to cover the theory part in practical class.

Crop Physiology

- In addition to the suggestions and alterations in all the courses of Crop Physiology, the expert suggested an extra elective course on Hydroponics to include.
- Dr. Kavi Kishore identified that in Introductory Biology course, aspect of transport of ions like sodium. Potassium etc., and also transport of sulphur and metabolism is lacking. After discussion concluded that as it is a remedial course no need to include here, but if it is not covered in the other Crop Physiology courses need to be included.
- Sri Koundinya suggested to consider aeroponics also while formulating elective on hydroponics.
- Dr. Kavi Kishor and Dr. Vijay Ramu suggested to have it as 1 + 2 course and they suggested to combine Hydroponics and Aeroponics, not separate. After thorough discussion it was resolved to go for combined course with 1+2 credit hours.
- Dr. KPC Rao suggested to consider Crop modelling in Eco-Physiology course.
- Dr, Kavi Kishor opined that nutritional aspect of the grain also to be considered under climate change not only the productivity as source-sink relationship is affected. Another

issue he raised is that every degree of night temperature increase, adversely affects pollination.

- If crop modelling is not covered in Agronomy can be considered here.

Genetics and Plant Breeding

- Apart from additions and deletions in different courses the expert added most important aspects like Breeder's Equation, Market segmentation, optimizing breeding pipelines, deploying novel genomic and phenomic tools., speed breeding etc., in ELCT 315.
- As it is Elective course, not all may register, for the benefit of all, I suggested to include in one of the regular courses, if possible. Then discussed and Sri Koundinya suggested possibility in Unit 4 of C.No. 311.
- Dr. Srinivas suggested that courses on digital tools shall be completed by third year to understand these aspects which Ashok suggested in 315
- Dr. Kavi Kishor opined that Genomics platform need to be established here in a couple of years. Dr. Ashok responded that meanwhile students may be exposed (exposure visits) to ICRISAT, ANGRAU, ICAR Institutes etc.,
- Sri Koundinya raised the importance of seed enhancement, pelleting, priming etc., quality assessment of GM crop seeds, SRR (seed Replacement Rate), how to manage varieties, hybrids, if not in the syllabus to include in C.No 314.

Soil Science and Agricultural Chemistry

- Dr. KPC Rao while presenting emphasized the need to look at the entire course in totality to avoid duplication.
- Sri Koundinya raised that carbon sequestration and carbon credits be covered, to cover here or environmental science to decide, KPC Rao said Soil Science is relevant and also to include carbon dynamics in C.No..321.
- Dr. Ashok raised the aspect of SDGs (Sustainable Development Goals) System based programme course. In Farming System and Sustainable Agriculture course of Agronomy, SDGs aspect can be included.
- Regarding Seed testing (in ELCT 222 Soil. Plant. Water and seed testing) KPC Rao felt that it is not appropriate place for seed testing. Sri Koundinya suggested that all these will be covered in Principles of Seed Technology in Breeding 314 course. Dr. Varaprasad opined that for the farmer point of view all should be at one place and if elective is opted student will be exposed all aspects relevant to farmer at one place. Dr. Vijay Ramu opined that it is hand in hand exposure. Decided to continue as it is.

Plant Pathology

- Dr. T. Prameela Devi presented.
- While discussing regarding new elective Mushroom Production Technology, discussed regarding the title of Hydroponics and Aeroponics elective course. Dr. Gajendra Babu suggested Indoor Farming, Dr. Srinivas suggested Novel Farming Technologies, Dr. KPC Rao suggested Soil Less Farming, Dr. Vidhu suggested to include Vertical farming also in this course.
- Dr. Ashok raised the secondary pests and importance of new pests. Shift of pests as per changing scenario may be considered.
- Food Supply, Food traceability are most important and hence food safety issues course importance has been stressed by Dr. Ashok. Codex and HACCP and other aspects shall be covered at least as one or two topics.

Agronomy

- Sri Koundinya suggested to focus on the handling of Irrigation equipment in the practical (to include in C.No.204 : Irrigation and Water Management practical) . Also suggested to include Oil palm production in terms of oil importance. It shall be covered in Horticulture, if not there to include in Horticulture courses. Also suggested to include minimum tillage / zero tillage (covered in 16th lecture of C.No.201), direct seeded rice (covered in practical of C.No. 201 : Methods of Rice transplanting)
- Dr. Malakondaiah stressed the importance of Forage crops production (covered in Unit 5 of C.No. 202).
- DR. Ashok raised the aspect of SDGs (to include in the course of C.No. 203 : Farming System and Sustainable Agriculture).

Horticulture

- To include “post harvest technology and value addition of commercial flowers and PSMA crops” at appropriate place

Biochemistry and Biotechnology

- Dr. Srinivas and Dr. Vijay Ramu suggested that the aspects like transgenic crops and other latest technologies suggested in Entomology may be dealt here. As it is combined course of Biochemistry and biotechnology and that to in first year may not be appropriate hence resolved to consider including in any of the Breeding courses or in Entomology only.

Animal Production and Statistics and Computer Applications

- Presented the revised content of the Courses under these Departments.

English

- Sri Koundinya suggested to consider “Science Communication” in Communication skills. How to communicate the Science to the stakeholders including Farmers. Will be discussed with the Professor of English and included.

Food Science and Nutrition

- Dr. Ashok suggested that Food Safety issues can be incorporated here. Yes, will be included here.
- Dr. Malakondaiah (Chat message), Need to include Attitude building (to include in C.No. 190) and ethics (already covered in C.No.190 of Agricultural Extension)

Agricultural Engineering

- Dr.K.P. Vidhu presented.
- Proposed activity-based learning process.
- Suggested registering certificate courses by students during RAWEP. May not be possible during RAWEP, but certainly can be planned while doing project work after completion of RAWEP and Industrial attachment. Additional Certificates Courses will be useful to students when they go out. Good concept and idea.
- Dr. Prameela Devi also endorsed this idea and suggested to think to involve the students during Project work of READY program.
- To plan for 21 days Certificate Course during final year within the structure of student READY for the benefit of the students. Need to identify the areas of certificate courses.

The curriculum follows Choice Based Credit System. The programme is comprised of Fundamental components, Core Courses, Elective courses, Projects etc., spread over 8 semesters.

Agenda Item 2: Academic Regulations, Examination System and Grading of 4 Year B.Sc. (Hons.) Agriculture Programme.

Mr. N. Narayana Rao, HoD, Applied Engineering and Member Secretary, BoS, presented.

The Academic Regulations of VFSTR, ANGRU and ICAR' Vth Deans recommendations has been taken as benchmark to revise the academic regulations for B.Sc. (Hons.) Agriculture of VFSTR. The major difference has been highlighted during the meeting and are briefly presented to Bos's members; the salient points are:

- (i) VFSTR examination regulations are almost same to that of ICAR Vth Deans' committee recommendations, the only difference between VFSTR and ANGRAU is, VFSTR is conducting three Mid Semester Examinations and five to seven Weekly Examinations, whereas ANGRAU is conducting only one Mid Semester Examination and no Weekly Examinations. Semester Final Theory and Semester Final Practical examinations mode is same.
- (ii) As per the norms of VFSTR the instructional days for a regular semester shall be a minimum of 90 working days exclusive of end-semester examination days. Where ANGRAU is adopting a minimum duration of 110 working days, consisting of 95 instructional days and 15 examination days except during the year of admission.
- (iii) The minimum attendance requirement in VFSTR is 80 % as against 75 % with a condonation of 10 % due to ill health (indoor hospitalization), in ANGRAU.
- (iv) Promotion to next year in line with ANGRAU is proposed as detailed below
 - a. Promotion to second year: A candidate is automatically promoted to second year irrespective of the number of courses as absent/failed courses in the first year.
 - b. Promotion to third year: A candidate should have passed all the courses of first year and should not have more than 6 courses of second year as backlog courses (failed).
 - c. Promotion to fourth year: A candidate should have passed all the courses of second year and should not have more than 6 courses of third year as backlog courses (failed).

The above points, (i) to (iv) will be discussed with the Dean, Evaluation, and Registrar of VFSTR to take a decision which will be placed before ensuing Academic council of VFSTR. Dr. T. Ramesh Babu, Chairperson, BoS, while thanking all the BoS Members and Special invitees, in his closing remarks, stated that the suggestions of the members of BoS will be incorporated appropriately in the curriculum of 4 Years B.Sc. (Hons.) Agriculture program of VFSTR duly adhering to the ICAR 5th Deans' Committee Recommendations. Dr. Y. Vara Prasad, Assistant Director, AHS, VFSTR proposed formal vote of thanks.

Dr. T. Ramesh Babu
Director, AHS, VFSTR &
Chairperson, BoS