University of Mumbai

No.UG/ 20 of 2021-22
Mumbai-400 032,
1st June, 2021.

To,
Co-Ordinator,
Sub –Centre, Ratnagiri,
University of Mumbai,
P-61, MIDC, Mirjole
Ratnagiri – 415 639

Sir,

I am to invite your attention to Ordinances, Regulations and Syllabus relating to the Certificate Course in Aquaponics and to inform you that the resolution passed by the Board of Deans at its meeting held on 20th July, 2021 **vide** item No. **37** have been accepted by the Academic Council at its meeting held on 23rd February, 2021, **vide** item no. **4.113** and subsequently approved by the Management Council at its meeting held 9th April, 2021 **vide** item No. **15** and that in accordance therewith, in exercise of the powers conferred upon the Management Council under Section 74(4) of the Maharashtra Public Universities Act, 2016 (Mah. Act No. VI of 2017) the Ordinance **6625 & 6626** Regulations **9368 & 9369** and the syllabus of **Certificate Course in Aquaponics** has been introduced and the same have been brought into force with effect from the academic year **2020-21**. (The said course might be introduced from the academic year 2021-2022 in the wake of prolonged Covid-19 pandemic situation in the country) accordingly. (The same is available on the University's website www.mu.ac.in).

MUMBAI – 400 032
1st June, 2021

(Dr. B.N. Gaikwad)
I/c. REGISTRAR

To ,

A.C/4.113/23/02/2021
M.C/15/9/04/2021

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No. UG/20-A of 2021 MUMBAI-400 032 1st June, 2021

Copy forwarded with Compliments for information to:-

1) The Chairman, Board of Deans
2) The Director, Board of Examinations and Evaluation,
3) The Director, Board of Students Development,
4) The Co-ordinator, University Computerization Centre,

(Dr. B.N.Gaikwad)
I/c. REGISTRAR

Copy to :-

1. **The Deputy Registrar, Academic Authorities Meetings and Services (AAMS),**
2. **The Deputy Registrar, College Affiliations & Development Department (CAD),**
3. **The Deputy Registrar, (Admissions, Enrolment, Eligibility and Migration Department (AEM),**
4. **The Deputy Registrar, Research Administration & Promotion Cell (RAPC),**
5. **The Deputy Registrar, Executive Authorities Section (EA),**
6. **The Deputy Registrar, PRO, Fort, (Publication Section),**
7. **The Deputy Registrar, (Special Cell),**
8. **The Deputy Registrar, Fort/ Vidyanagari Administration Department (FAD) (VAD), Record Section,**
9. **The Director, Institute of Distance and Open Learning (IDOL Admin), Vidyanagari,**

They are requested to treat this as action taken report on the concerned resolution adopted by the Academic Council referred to in the above circular and that on separate Action Taken Report will be sent in this connection.

1. **P.A to Hon'ble Vice-Chancellor,**
2. **P.A Pro-Vice-Chancellor,**
3. **P.A to Registrar,**
4. **All Deans of all Faculties,**
5. **P.A to Finance & Account Officers, (F.& A.O),**
6. **P.A to Director, Board of Examinations and Evaluation,**
7. **P.A to Director, Innovation, Incubation and Linkages,**
8. **P.A to Director, Board of Lifelong Learning and Extension (BLLE),**
9. **The Director, Dept. of Information and Communication Technology (DICT) (CCF & UCC), Vidyanagari,**
10. **The Director of Board of Student Development,**
11. **The Director, Department of Students Walfare (DSD),**
12. **All Deputy Registrar, Examination House,**
13. **The Deputy Registrars, Finance & Accounts Section,**
14. **The Assistant Registrar, Administrative sub-Campus Thane,**
15. **The Assistant Registrar, School of Engg. & Applied Sciences, Kalyan,**
16. **The Assistant Registrar, Ratnagiri sub-centre, Ratnagiri,**
17. **The Assistant Registrar, Constituent Colleges Unit,**
18. **BUCTU,**
19. **The Receptionist,**
20. **The Telephone Operator,**
21. **The Secretary MUASA**

for information.

- Necessity of starting these courses

  All above courses are skill-based and add-on courses. These courses will develop a new skill in the students of already existing M.Sc. programmes (Chemistry, Environmental Science, Zoology (Oceanography) thereby making them still competent. The addition of these courses on the bio data of students, will increase the probability of their getting recruited in industries.

- Whether UGC has recommended to start the said courses ?

  The University Grants Commission has from time to time, focused the importance of commencement of skill based courses.

- Whether all the courses have commenced from the academic year 2019-20 ?

  Because of declaration of lockdown to prevent the spread of Covid-19 since March, 2020, this office was unable to place & subsequently obtain the sanction to the proposal of starting of these courses from the academic year 2019-20.

- The courses started by the University are self-financed. whether adequate number of eligible permanent faculties are available ?
  The permanent faculty from this office and nearby aided colleges and experts from industries are available to complete the curriculum of these courses.

- To give details regarding duration of the course and is it possible to compress the course ?

Duration of each course is as below :-

Sr. No.	Course	Duration
1	Diploma in Industrial Safety & Management	1 Year
2	Certificate Course in Aquaculture	6 Months
3	Certificate Course in Aquaponics	6 Months

All courses are of shorter durations.

- The intake capacity of each course and number of admissions given in the current academic year (2019-20)

Intake capacity of each course is as below :-

Sr. No.	Course	Intake Capacity
1	Diploma in Industrial Safety & Management	20
2	Certificate Course in Aquaculture	35
3	Certificate Course in Aquaponics	40

The admission to these courses is yet to be started.

- Opportunities of employability / employment available after undertaking these courses.

The certificate courses have the potential of self-employment. The student having the graduation in science / engineering or diploma in engineering is eligible to take admission to the course of Diploma in Safety & Management. The addition of this Diploma course to the above qualification, will increase the employability of the student.

AC: 23-07-2020

Item No. : 4.113

UNIVERSITY OF MUMBAI

Program:

CERTIFICATE COURSE IN AQUAPONICS

Syllabus

(Certificate Course of 6 months with effect from the Academic Year 2020-21)

AC - 23/07/2020

Item NO.:4.113

UNIVERSITY OF MUMBAI

Syllabus for approval

S. No.	Heading	Particulars
1	**O - 6625** Title of the course	Certificate Course in Aquaponics
2	**O - 6626** Eligibility for admission	XII Science passed or Equivalent
3	**R – 9368** Passing Marks	40%
4	Ordinances / Regulations (if any)	
5	**R – 9369** No. of Years / Semester	Six Months
6	Level	~~PG / UG~~ / Certificate (Strike out which is not applicable)
7	Pattern	Yearly / Semester (Strike out which is not applicable)
8	Status	New / ~~Revised~~ (Strike out which is not applicable)
9	To be implemented from Academic Year	From Academic Year – 2020 -21

Date **Signature**

Name of BOS Chairperson / Dean -

University of Mumbai

Draft ordinance, Regulations and Syllabus related to the

CERTIFICATE COURSE IN AQUAPONICS

Ordinance: **Title of Course**
'Certificate Course in Aquaponics'

Ordinance: **Eligibility**
A candidate for being eligible at admission to the Certificate Course in Aquaponics (CCA) must have passed XII standard examination in Science from Maharashtra State Board of Higher Education or as equivalent thereto.

Regulation: **Duration of Course**
The duration of Certificate Course in Aquaponics will be of six months.

Regulation: **Intake Capacity:**
40 candidates in one batch

Teachers: Post Graduate in Botany,
M-Phil, Ph.D. Sitting and Retired.
Government Qualification Senior Officers and experts from Industries, and as per the norms laid down by the University of Mumbai.

Regulation: **Fees**

S. N.	Heads	Amount (Rs.)
1.	Tuition Fee	3500
2.	Registration Fee	200
3.	Admission Processing Fee	100
4.	Examination Fee	700
5.	Laboratory Fee	1500
6.	Mark Sheet	50
7.	Study Material & Updating	600
8.	Library Fee	200
9.	Identity Card	50
10.	Onsite Demonstration Charges	200
11.	Computer / Internet Fee	200
12.	Vice Chancellors Fund	20
13.	Student Welfare	20
14.	University Sports & Cultural Activities	20
15.	Disaster Relief Fund	10
16.	Group Insurance	30
17.	Miscellaneous	100
	Total Fees:	7500

Regulation: **Examination**

The examination of the Certificate Course will be held in ONE part - at the end of course.

Regulation: **Standards of Passing of Examination**

To pass this six-month Certificate Course in Aquaponics, the candidate must obtain a minimum of 40% marks overall, in respective paper at the end of term exam.

Less than 40 % - Fail
40 % to 50 % - Pass
51 % to 59 % - Second Class
60 % to 74% - First Class
75 % & above - Distinction

Regulation: **Pedagogy (Instructional System)**

The instructional system for CCA is based on theoretical lectures, Laboratory Practicals and field based visits, Audio – video program, case studies, group work, assignments and presentation. The course envisages active participation approach of the students.

Regulation: **Course Evaluation**

Group work and presentation : 10 %
Field, Visit and Report writing : 10 %
Practical Exam / Viva etc : 30 %
End-term test : 50 %

Regulation: **Course Timing**

Two days in a week (4 hours a day)

The fees for the course are proposed to be Rs. 7500. With the intake capacity of 40 candidates the amount to be collected will be Rs. 3,00,000.00. The recurring expenses are estimated to be Rs. 1,75,000. 00.

The sinking fund for collective expenditure of the center like publicity for the courses, purchase of the instruments, chemicals, glass wares, etc. will be Rs. 95,000.00.

University of Mumbai

Draft Ordinance, Regulations and Syllabus related to the

CERTIFICATE COURSE IN AQUAPONICS

Total Hours: 120 hours

PAPER I: Introduction and overview Aquaponics (25 hours)

1. Definition and Principles of Aquaponics.
2. History of Aquaponics
3. Merits and demerits of Aquaponics
4. Nutrient and pH maintenance
5. Working of Aquaponics

PAPER II: Aquaponic Systems and maintenance (25 hours)

1. Components of Aquaponics systems
2. Circulating Aquaponics systems
3. Non-circulating Aquaponics systems
4. Setting up and maintenance of an Aquaponics
5. Water quality Maintenance

PAPER III: Aquaponics and its management. (25 hours)

1. Aquaponics animals.
2. Aquaponics plants
3. Pest and disease management
4. Post-harvest handling
5. Troubleshooting (Fish mortality, blockages and leaks and water quality issues)

PAPER IV: Practical component. **(45 hours)**

1. Identification to aquarium accessories like aerator, bubblers, feeding cup, food dispenser, filters-bottom, column and surface
2. Checking and Adjusting pH of aquaponic culture
3. Identification of aquaponics animals (Tilapia, catfish, common car)
4. selecting crop, their management and care
5. Determination of fish mortality
6. Diagnosis of Mineral Deficiencies in Plants by Visual Symptoms
7. Field visit

References:

1. Modern Trends in agriculture (Science publication)
2. Rath, A.K. Freshwater Aquaculture,
3. https://sensorex.com/blog/2019/10/29/hydroponic-systems-explained/
4. Experimenting With Hydroponics B. JOHN SYROCKI, College of Education, State University of New York, Brockport Downloaded from http://online.ucpress.edu/abt/article-pdf/23/7/444/17689/4439697
5. https://www.biologydiscussion.com/plants/soilless-growth-in-plants-with-diagram/22782
6. https://byjus.com/biology/hydroponics/
7. https://www.epicgardening.com/hydroponic-systems/
8. Andy Jacobson Hydroponics: The Essential Hydroponics Guide: A Step-By-Step Hydroponic Gardening Guide to Grow Fruit, Vegetables, and Herbs at Home.
9. How To Hydroponics 4th Edition by Keith Roberto.
10. DIY Hydroponics Gardening: How to Make Your First Hydroponics System without Spending too Much Money or Time by James Coble.
11. Hydroponics: A Practical Guide for the Soilless Grower (2nd Edition), by Dr. J. Benton Jones.
12. Hydroponics for the Home Grower by Howard M. Resh.
13. Commercial Hydroponics by John Mason
14. Plant Factory: An Indoor Vertical Farming System for Efficient Quality Food Production by Oyoki Kozai