# Maulana Abul Kalam Azad University of Technology, West Bengal

## (Formerly known as West Bengal University of Technology)

# Recommended MOOCs courses for attaining the Honours for AICTE UG programmes.

(Coordinator, MOOCs, MAKAUT, WB)

**Note: MOOCs for the Credit Transfer and MOOCs for attainment of the Honours are two separate recommendations.**

# MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY, WEST BENGAL
## (Formerly Known as WEST BENGAL UNIVERSITY OF TECHNOLOGY)

Date: 16.08.2019

## MOOCs at MAKAUT, WB
## (Applicable from the session 2018-2019)

All India Council for Technical Education (AICTE) has introduced Model Curriculum for Bachelor of Technology programme with 160 credits in the entire programme of 4 years, and additional 20 credits will be required to be done for the degree of Bachelor of Technology with Honours. These additional 20 credits will have to be acquired with online courses (MOOCs) as per AICTE. So students will have to complete additional 20 credits through MOOCs within 4 years of time. This creates an excellent opportunity for students to acquire the necessary skill set for employability through massive online courses where the rare expertise of world famous experts from academics and industry are available. Maulana Abul Kalam Azad University of Technology, West Bengal (MAKAUT, W.B.) has thus decided to introduce AICTE model curriculum for its B.Tech Programmes and suggest baskets for MOOCs available year wise for the four year B.Tech programme from the sessions 2018-2019. The basket for MOOCs will be a dynamic, as courses keep on updating with time.

## GUIDELINES FOR MOOCs

MOOCs (Massive Open Online Courses) have been inducted in University curriculum and academic activities in the following ways:

1. MOOCs for Honours Degree at Undergraduate Level.
2. MOOCs for mandatory Coursework of Research Scholars for Ph.D. degree
3. MOOCs are also used for credit transfer as equivalent to theory courses of Curriculum under special consideration.
4. MOOCs for Mandatory Additional Requirements (MAR)

### 1 (A) MOOCs for B.Tech Honours Degree

For B.Tech Honours Degree, a B.Tech student will have to earn 20 credits from MOOCs from the MOOCs basket specified by the University in addition to 160 credits for B.Tech degree.

The total of 20 credits that is required to attain eligibility for B.Tech Honours degree is distributed over four years in the following way:

1st year: **4-8 credits**                2nd year: **4-8 credits**
3rd year: **4-8 credits**                4th year: **4 credits**

A student of first year has to cover courses from at least three skills:
1. Computer Programing with Python /R
2. Softskill
3. Ethics

The concept is that, students of all streams are to be equipped with Programming skill in the language that is in high demand worldwide in the first year itself so that they can apply this skill in the subsequent semesters in their different areas including their core area of study.

Soft skill is very essential for grooming of the student and student must be exposed to it in the very beginning of the 4 year long program.

Ethics is something that one should practice. Students are to be made aware of the ethics right in the beginning of the 4 year long program so that they can practice at least some of the ethical norms as applicable to Institutional environment and society. and be prepared to practice ethics in their working life.

**MOOCs courses are to be taken from the specified MOOCs basket available in the University website to complete 20 credits.**

### 1 (B) MOOCs for B. Pharm Program

For B. Pharm Honours degree. 4 to 8 credits (at least 3 courses) will have to be obtained by students in addition to the credits specified for B. Pharm degree curriculum during entire period of 4 years. These credits have to be obtained through the MOOCs basket specified by the University.

### 1 (C) MOOCS for UG Architecture Degree

For B. Arch Honours degree. 8 credits will have to be obtained by the students in addition to B. Arch Curriculum during entire period of 5 years from MOOCs basket as specified.

### 1 (D) MOOCS for UG Lateral entry students

For lateral entry students, requirement of MOOCs credit will be as per following to obtain honours degree.

For B Tech Courses: 16 credits (2$^{nd}$year: 4-8 credits, 3$^{rd}$year: 4-8 credits, 4$^{th}$year: 4 credits)

For B Pharm Courses: 4 to 6 credits (at least 3 courses)

For B Arch Courses: 6 credits

### 1 (E) MOOCs for Non-AICTE UG Programs

For Non-AICTE programs. a student will have to do 16 credits from MOOCS in addition to 120 credits for UG degree.

Student has to cover courses in the first year:

MOOCs on R or Python Programming Language

MOOCs on Soft skill

MOOCs on Ethics

The concept is that students of all programs (leading to degree) are to be equipped with Programming skill in the language that is in high demand worldwide in the first year itself so that they can apply this skill in the subsequent semesters in their different areas including their core area of study.
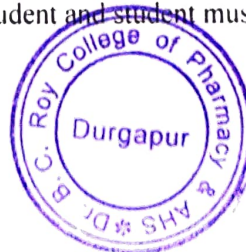
Soft skill is very essential for grooming of the student and student must be exposed to it in the very beginning of the 3 year long program.

Prof. (Dr.) Subhabrata Ray
*Principal*, M. Pharm, Ph.D.
Dr. B. C. Roy College of Pharmacy & A.H.S.
Bidhannagar, Durgapur-713206, Burdwan

Ethics is something that one should practice. Students are to be made aware of the ethics right in the beginning of the 3 year long program so that they can practice at least some of the ethical norms as applicable to Institutional environment and society, and be prepared to practice ethics in their working life.

**Remaining of the MOOCs courses are to be taken from the specified MOOCs basket available in the University website to complete 16 credits.**

**Note:**
**If a student is unable to complete the specified credits of MOOCs in a particular sem or year, he/she can complete the same in a subsequent semester. However he/she has to take MOOCs from the current MOOCs basket of that particular semester or year. If in a MOOCs basket, no semester or year is mentioned, it can be assumed that the basket is for the whole program.**

**All MOOCs baskets are dynamic in nature and shall change according to the availability of MOOCs in different MOOCs platforms.**

## 1 (E) MOOCs for Research Scholars for Ph.D. degree

Research scholars have to take MOOCs as mandatory as a part of coursework for Ph.D. degree as per advice of the Research Supervisor. The credits for the course will be as per the assignment of credit for the course in the University website according to the length (in weeks) of the course, even if there is different credit assignment in the MOOCs platforms.
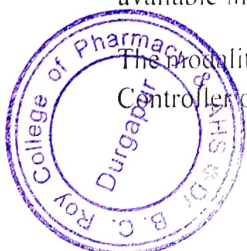
## MOOCs for Credit Transfer

If a student of the university is unable to attend a theory course due to attending internship or any other justified reason, the student may be allowed with special permission of the University to pursue equivalent MOOCs for against the theory course. If required, more than one MOOCs may be necessary to cover the syllabus of the theory course and the student has to complete both the MOOCs to cover the course. Average of the marks obtained in both the courses will be considered for equivalence and credit transfer.

## Evaluation of the MOOCs course

Evaluation of the MOOCs courses would be done by the organization by whom it is being offered. In some extraordinary circumstances or evaluation and certification process is not available in the MOOCs platform, University may conduct examination for evaluation. The modality of evaluation through certified personnel, online or offline, will be decided by the Controller of Examinations of the University.

### Uploading of MOOCs Data

Every Affiliated Institution has to upload the details of MOOCs data in respect of each student time to time in University portal and/or hard/soft copy as per instruction of the Controller of Examinations of the University. This is applicable for University In-House Programs also.

### MOOCs for Mandatory Additional Requirements (MAR)

MOOCs in MAR is provided for encouraging every student to enter in Digital Content form of Education from well-known Universities or organizations.

Students can choose any MOOCs course as per their interest area and each MOOCs will have 20 points for earning MAR points. There is no credit system for MOOCs in MAR and the MOOCs courses which are taken for earning credits for Honours degree will not be considered in MAR purpose.

This notification supersedes all earlier instructions regarding MOOCs courses.

By Order

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## List of MOOCs for UG Honours degree (AICTE Programmes)
### Effective for Odd Semester of 2020-21

# MOOCs for B. Pharm (Hons)

### Effective for Odd Semester of 2020-21(REVISED)

| Course Name | Duration (weeks) | Credit | Name of the Mooc websites | Availibility |
|---|---|---|---|---|
| Fundamentals of Spectroscopy | 12 | 3 | SWAYAM | Available |
| Organometallic Chemistry | 4 | 1 | SWAYAM | Available |
| Biochemistry | 12 | 3 | SWAYAM | Available |
| Principles and application of NMR spectroscopy | 8 | 2 | SWAYAM | Available |
| Medical Biomaterials | 8 | 2 | SWAYAM | Available |
| Computational systems Biology | 12 | 3 | SWAYAM | Available |
| Bio engineering: An interface with biology and medicine | 8 | 2 | SWAYAM | Available |
| Bio-informatics: Algorithms and application | 12 | 3 | SWAYAM | Available |
| Medical Biomaterials | 8 | 2 | SWAYAM | Available |
| Mass transfer operation-I | 12 | 2 | SWAYAM | Available |
| Soft nano technology | 8 | 2 | SWAYAM | Available |
| Enhancing soft skills and personality | 8 | 2 | SWAYAM | Available |
| Soft skill development | 8 | 2 | SWAYAM | Available |
| Introduction to materials Science and Engineering | 12 | 3 | SWAYAM | Available |
| Statistical Inference | 8 | 2 | SWAYAM | Available |

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| | | | | |
|---|---|---|---|---|
| Regulatory requirements for medical Device | 4 | 3 | SWAYAM | Available |
| Business statistics | 12 | 3 | SWAYAM | Available |
| Business analysis and data mining modelling using R | 12 | 3 | SWAYAM | Available |
| Basic Real analysis | 12 | 3 | SWAYAM | Available |
| Prescription Drug Regulation, Cost, and Access: Current Controversies in Context | 8 | 2 | EDX | Available |
| Medicinal Chemistry: The Molecular Basis of Drug Discovery | 7 | 2 | EDX | Available |
| Human Anatomy | 6 | 2 | EDX | Available |
| Principle of Biochemistry | 15 | 4 | EDX | Available |
| Health Informatics: The Cutting Edge | 5 | 2 | EDX | Available |
| CERTAIN : Pragmatic Clinical Trials and Healthcare Delivery Evaluations | 8 | 2 | EDX | Available |
| Molecular Biology - Part 1: DNA Replication and Repair | 8 | 2 | EDX | Available |
| Molecular Biology - Part 2: Transcription and Transposition | 7 | 2 | EDX | Available |
| Proteins: Biology's Workforce | 5 | 2 | EDX | Available |
| Autophagy: Research behind the 2016 Nobel Prize in Physiology or | 3 | 1 | EDX | Available |

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| Medicine | | | | |
|---|---|---|---|---|
| The Immune System: New Developments in Research - Part 1 | 4 | 1 | EDX | Available |
| Metabolomics in Life Sciences | 4 | 1 | EDX | Available |
| BioStatistics | 8 | 2 | EDX | Available |
| Fundamentals of Scalable Data Science(by IBM) | 12 | 3 | COURSERA | Available |
| Data Analysis and Interpretation | 12 | 3 | COURSERA | Available |
| Machine Learning for Accounting with Python | 12 | 3 | COURSERA | Available |
| Data Processing Using Python | 12 | 3 | COURSERA | Available |
| Introduction to Artificial Intelligence (by IBM) | 8 | 2 | COURSERA | Available |
| Data Science: Foundations using R Specialization | 12 | 3 | COURSERA | Available |
| Python for Data Science and AI | 8 | 2 | COURSERA | Available |
| Data Science: Statistics and Machine Learning Specialization | 12 | 3 | COURSERA | Available |
| Python and Statistics for Financial Analysis | 4 | 1 | COURSERA | Available |
| Applied Machine Learning in Python | 12 | 4 | COURSERA | Available |
| Machine Learning | 8 | 2 | NPTEL | Available |
| Introduction to Machine Learning | 12 | 3 | NPTEL | Available |
| Data Science for Engineers | 8 | 2 | NPTEL | Available |

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| | | | | |
|---|---|---|---|---|
| Introduction to Internet of Things | 12 | 3 | NPTEL | Available |
| Infrared spectroscopy for pollution monitoring | 4 | 2 | NPTEL | Available |
| Computer Aided Drug Design | 8 | 2 | NPTEL | Available |
| Spectroscopic Techniques for Pharmaceutical and Biopharmaceutical Industries | 12 | 3 | NPTEL | Available |
| Principles Of Downstream Techniques In Bioprocess | 12 | 3 | NPTEL | Available |
| Fundamentals of micro and nanofabrication | 12 | 3 | NPTEL | Available |
| Drug Delivery: Principles and Engineering | 12 | 3 | NPTEL | Available |
| Biomedical nanotechnology | 4 | 2 | NPTEL | Available |
| Non-Parametric Statistical Inference | 4 | 2 | SWAYAM | Available |
| Introduction to Biostatistics | 8 | 2 | NPTEL | Available |
| Business statistics | 12 | 3 | SWAYAM | Available |
| One and two dimensional NMR Spectroscopy for chemists | 12 | | Nptel | Available |
| Prescription Drug Regulation, Cost, and Access: Current Controversies in Context | 8 | 2 | EDX | Available |
| Medicinal Chemistry: The Molecular Basis of Drug Discovery | 7 | 2 | EDX | Available |

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| | | | | |
|---|---|---|---|---|
| Human Anatomy | 6 | 2 | EDX | Available |
| Principle of Biochemistry | 15 | 4 | EDX | Available |
| Health Informatics: The Cutting Edge | 5 | 2 | EDX | Available |
| CERTAIN : Pragmatic Clinical Trials and Healthcare Delivery Evaluations | 8 | 2 | EDX | Available |
| Molecular Biology - Part 1: DNA Replication and Repair | 8 | 2 | EDX | Available |
| Molecular Biology - Part 2: Transcription and Transposition | 7 | 2 | EDX | Available |
| Proteins: Biology's Workforce | 5 | 2 | EDX | Available |
| Autophagy: Research behind the 2016 Nobel Prize in Physiology or Medicine | 3 | 1 | EDX | Available |
| The Immune System: New Developments in Research - Part 1 | 4 | 1 | EDX | Available |
| Metabolomics in Life Sciences | 4 | 1 | EDX | Available |
| BioStatistics | 8 | 2 | EDX | Available |
| Fundamentals of Scalable Data Science(by IBM) | 12 | 3 | COURSERA | Available |
| Data Analysis and Interpretation | 12 | 3 | COURSERA | Available |
| Machine Learning for Accounting with Python | 12 | 3 | COURSERA | Available |
| Data Processing Using Python | 12 | 3 | COURSERA | Available |

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|---|---|---|---|---|
| Introduction to Artificial Intelligence (by IBM) | 8 | 2 | COURSERA | Available |
| Data Science: Foundations using R Specialization | 12 | 3 | COURSERA | Available |
| Python for Data Science and AI | 8 | 2 | COURSERA | Available |
| Data Science: Statistics and Machine Learning Specialization | 12 | 3 | COURSERA | Available |
| Python and Statistics for Financial Analysis | 4 | 1 | COURSERA | Available |
| Applied Machine Learning in Python | 12 | 4 | COURSERA | Available |
| Introduction to Machine Learning | 12 | 3 | NPTEL | Available |
| Data Science for Engineers | 8 | 2 | NPTEL | Available |
| Introduction to Internet of Things | 12 | 3 | NPTEL | Available |
| Industrial Pharmacy I | 12 | 3 | Swayam | Available |

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