APJ Abdul Kalam Technological University
Thiruvananthapuram

Abstract

APJAKTU–Academics- List of Approved MOOC Courses for B.Tech Minor in Engineering (2019 Regulations) - Orders issued - Reg.

ACADEMIC SECTION

U.O.No. 1988/2021/KTU   Thiruvananthapuram, Dated: 27.11.2021

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*Read:-*1. Rule R.11.5 of B.Tech 2019 Regulations.

2. List of Minor MOOC courses recommended by the various Board of Studies.

ORDER

Vide paper read as (1) above, students registering for the B. Tech Degree with Minor programme can earn 8 credits by undergoing 2 Massive Open Online Courses (MOOC) relevant to the concerned subjects in the respective minor basket offered by agencies namely AICTE/ NPTEL/ SWAYAM/ NITTTR with the recommendation by the Board of studies and approval of the Academic Council.

Vide paper read (2) above, various Board of Studies, after verifying the syllabus content and duration of the courses, has recommended to approve **163 Massive Online Open Courses.**

Considering the urgency, sanction has been accorded by the Vice Chancellor to approve the list of 163 MOOC Courses offered by agencies namely AICTE/ NPTEL/ SWAYAM/ NITTTR that can be registered by the students of **B.Tech Minor** in Engineering Programme to earn credits, as appended herewith (*refer attachment*), subject to reporting and ratification of the matter in the Academic Council .

Sd/-

Dr. Sadiq A. *

Dean (Academic)

Forwarded / By Order

Section Officer

* This is a computer system (Digital File) generated letter. Hence there is no need for a physical signature.

List of Approved MOOC Courses for B.Tech Minor in Engineering

APPLIED ELECTRONICS & INSTRUMENTATION

SL.No	Course	Course Code	Course Type	Duration	Offering Platform	B.Tech Regulation	Course Institution	Remarks
BASKET-I SIGNAL PROCESSING								
1	An Introduction to artificial intelligence	AEM100	MINOR MOOC	12 weeks	NPTEL	B.Tech Regulation 2019	IIT Delhi	
2	Introduction to Internet of things	AEM101	MINOR MOOC	12 weeks	NPTEL	B.Tech Regulation 2019	IIT Kharagpur	
BASKET-II ELECTRONICS CIRCUITS								
1	Fundamentals of semi conductor devices	AEM200	MINOR MOOC	12 weeks	NPTEL	B.Tech Regulation 2019	IISc Bangalore	
2	Introduction to embedded system design	AEM201	MINOR MOOC	12 weeks	NPTEL	B.Tech Regulation 2019	IIT Jammu	
BASKET-III INSTRUMENTATION AND CONTROL								
1	Industrial Automation and control	AEM300	MINOR MOOC	12 weeks	NPTEL	B.Tech Regulation 2019	IIT Kharagpur	
2	Introduction to Robotics	AEM301	MINOR MOOC	12 weeks	NPTEL	B.Tech Regulation 2019	IIT Kanpur	
3	Sensors and actuators	AEM302	MINOR MOOC	12 weeks	NPTEL	B.Tech Regulation 2019	IISc Bangalore	

List of Approved MOOC Courses for B.Tech Minor in Engineering

BIOMEDICAL ENGINEERING

SL. No	Course	Course Code	Course Type	Duration	Offering Platform	B.Tech Regulation	Course Institution	Remarks
BASKET-I BIOMEDICAL IMAGING								
1	Digital Image Processing	BMM100	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IIT Kharagpur	
2	Image Signal Processing	BMM101	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IIT Madras	
3	Computer Vision and Image Processing - Fundamentals and Applications	BMM102	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IIT Guwahati	
4	Introduction to Biomedical Imaging Systems	BMM103	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IIT Madras	
BASKET-II REHABILITATION ENGINEERING								
1	Analytical Techniques	BMM200	MINOR MOOC	15 Weeks	NPTEL	B.Tech Regulation 2019	AIIMS, New Delhi	
2	Biomechanics of Joints and Orthopaedic Implants	BMM201	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IITKGP	
3	Introductory Neuroscience & Neuro-Instrumentation	BMM202	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IISc Bangalore	
BASKET-III BIOMEDICAL COMPUTATIONAL METHODS								
1	Applied Linear Algebra for Signal Processing, Data Analytics and Machine Learning	BMM300	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IIT Kanpur	
2	Introduction to Dynamical Models in Biology	BMM301	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IITR	
3	Mathematical Aspects of Biomedical Electronic System Design	BMM302	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IISc Bangalore	
4	Numerical Methods And Simulation Techniques For Scientists And Engineers	BMM303	MINOR MOOC	8 Weeks	NPTEL	B.Tech Regulation 2019	IIT Guwahati	
5	Numerical Methods for Engineers	BMM304	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IIT Madras	
6	Essential Mathematics for Machine Learning	BMM305	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IIT Roorkee	

7	Fundamentals Of Artificial Intelligence	BMM306	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IIT Guwahati	
8	An Introduction to Artificial Intelligence	BMM307	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IIT Delhi	
9	Mathematical Modeling of Manufacturing Processes	BMM308	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IIT Madras	
10	Numerical methods	BMM309	MINOR MOOC	8 Weeks	NPTEL	B.Tech Regulation 2019	IIT Roorkee	
11	Introduction to Machine Learning - IITKGP	BMM310	MINOR MOOC	8 Weeks	NPTEL	B.Tech Regulation 2019	IIT Kharagpur	
12	Introduction to Machine Learning - IITM	BMM311	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IIT Madras	

	List of Approved MOOC Courses for B.Tech Minor in Engineering							
	BIO TECHNOLOGY ENGINEERING							
SL. No	**Course**	**Course Code**	**Course Type**	**Duration**	**Offering Platform**	**B.Tech Regulation**	**Course Institution**	**Remarks**
BASKET I - BIOPROCESSING								
1	Industrial Biotechnology	BTM100	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IITKGP	
2	Experimental Biotechnology	BTM101	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IITG	
3	Principles Of Downstream Techniques In Bioprocess	BTM102	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IITM	
4	Cell Culture Technologies	BTM103	MINOR MOOC	8 Weeks	NPTEL	B.Tech Regulation 2019	IITK	
BASKET II - CELL & MOLECULAR BIOLOGY								
1	Drug Delivery: Principles and Engineering	BTM200	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IISc	
2	Genetic Engineering: Theory and Application	BTM201	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IITG	
3	Introduction to Proteogenomics	BTM202	MINOR MOOC	12 weeks	NPTEL	B.Tech Regulation 2019	IITB	
4	Computer Aided Drug Design	BTM203	MINOR MOOC	8 weeks	NPTEL	B.Tech Regulation 2019	IITM	
BASKET-III HEALTH SAFETY ENVIRONMENT								
1	Industrial Safety Engineering	BTM300	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IITKGP	
2	Environmental Biotechnology	BTM301	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IITKGP	
3	Wastewater Treatment and Recycling	BTM302	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IITKGP	

List of Approved MOOC Courses for B.Tech Minor in Engineering

CHEMICAL ENGINEERING

SL. No	Course	Course Code	Course Type	Duration	Offering Platform	B.Tech Regulation	Course Institution	Remarks
BASKET-I PROCESS SAFETY								
1	Chemical Process Safety	CHM100	MINOR MOOC	12 weeks	NPTEL	B.Tech Regulation 2019	IIT Roorkee	
2	Industrial Safety Engineering	CHM101	MINOR MOOC	12 weeks	NPTEL	B.Tech Regulation 2019	IIT KGP	
3	Explosions and Safety	CHM102	MINOR MOOC	12 weeks	NPTEL	B.Tech Regulation 2019	IIT Madras	
BASKET-II PETROLEUM AND PETROCHEMICALS								
1	Natural Gas Engineering	CHM200	MINOR MOOC	8 weeks	NPTEL	B.Tech Regulation 2019	IIT Guwahati	
2	Upstream LNG Technology	CHM201	MINOR MOOC	12 weeks	NPTEL	B.Tech Regulation 2019	IITKGP	
BASKET-III MATERIALS SCIENCE AND ENGINEERING								
1	Surface Engineering of Nanomaterials	CHM300	MINOR MOOC	8 weeks	NPTEL	B.Tech Regulation 2019	IIT Roorkee	
2	Advanced Materials And Processes	CHM301	MINOR MOOC	12 weeks	NPTEL	B.Tech Regulation 2019	IIT Kharagpur	
3	Phase Diagrams In Materials Science And Engineering	CHM302	MINOR MOOC	12 weeks	NPTEL	B.Tech Regulation 2019	IIT Kanpur	
4	Transport Phenomena In Materials	CHM303	MINOR MOOC	12 weeks	NPTEL	B.Tech Regulation 2019	IIT Madras	
5	Material Characterization	CHM304	MINOR MOOC	12 weeks	NPTEL	B.Tech Regulation 2019	IITM	
6	Polymers: concepts, properties, uses and sustainability	CHM305	MINOR MOOC	12 weeks	NPTEL	B.Tech Regulation 2019	IITM	
7	Introduction to Composites	CHM306	MINOR MOOC	12 weeks	NPTEL	B.Tech Regulation 2019	IITK	

	List of Approved MOOC Courses for B.Tech Minor in Engineering							
	COMPUTER SCIENCE & ENGINEERING							
SL. No	Course	Course Code	Course Type	Duration	Offering Platform	B.Tech Regulation	Course Institution	Remarks
BASKET- 1 SOFTWARE ENGINEERING								
1	Software Engineering	CSM100	MINOR MOOC	12 weeks	SWAYAM/ NPTEL	B.Tech Regulation 2019	IIT KGP	
BASKET- 2 MACHINE LEARNING								
1	Introduction to Machine Learning	CSM200	MINOR MOOC	8 weeks	SWAYAM/ NPTEL	B.Tech Regulation 2019	IIT KGP	
BASKET-3 NETWORKING								
1	Introduction to Computer Networks and Internet protocols	CSM300	MINOR MOOC	15 weeks	SWAYAM/ NPTEL	B.Tech Regulation 2019	Gujarat University Ahmedabad	
2	Computer Networks and Internet Protocol	CSM301	MINOR MOOC	12 weeks	SWAYAM/ NPTEL	B.Tech Regulation 2019	IIT Kharagpur	

List of Approved MOOC Courses for B.Tech Minor in Engineering

ELECTRONICS & BIOMEDICAL ENGINEERING

SL. No	Course	Course Code	Course Type	Duration	Offering Platform	B.Tech Regulation	Course Institution	Remarks
BASKET-I BIOMEDICAL SIGNAL & IMAGE PROCESSING								
1	Digital Image Processing	EBM100	MINOR MOOC	12 weeks	NPTEL	B.Tech Regulation 2019	IIT Kharagpur	
2	Image Signal Processing	EBM101	MINOR MOOC	12 weeks	NPTEL	B.Tech Regulation 2019	IIT Madras	
3	Biomedical Signal Processing	EBM102	MINOR MOOC	12 weeks	NPTEL	B.Tech Regulation 2019	IIT Kharagpur	
4	Discrete Time Signal Processing	EBM103	MINOR MOOC	8 weeks	NPTEL	B.Tech Regulation 2019	IIT Kharagpur	
5	Mathematical Methods and Techniques in Signal Processing	EBM104	MINOR MOOC	12 weeks	NPTEL	B.Tech Regulation 2019	IISc Bangalore	
6	Digital Signal Processing and its Applications	EBM105	MINOR MOOC	12 weeks	NPTEL	B.Tech Regulation 2019	IIT Bombay	
7	Statistical Signal Processing	EBM106	MINOR MOOC	12 weeks	NPTEL	B.Tech Regulation 2019	IIT Guwahati	
8	Computer Vision and Image Processing - Fundamentals and Applications	EBM107	MINOR MOOC	12 weeks	NPTEL	B.Tech Regulation 2019	IIT Guwahati	
9	Introduction to Biomedical Imaging Systems	EBM108	MINOR MOOC	12 weeks	NPTEL	B.Tech Regulation 2019	IIT Madras	
BASKET-II BIOMEDICAL INSTRUMENTATION								
1	Analytical Techniques	EBM200	MINOR MOOC	15 weeks	SWAYAM	B.Tech Regulation 2019	AIIMS, New Delhi	
2	Biomechanics of Joints and Orthopaedic Implants	EBM201	MINOR MOOC	12 weeks	NPTEL	B.Tech Regulation 2019	IITKGP	
3	Introductory Neuroscience & Neuro-Instrumentation	EBM202	MINOR MOOC	12 weeks	NPTEL	B.Tech Regulation 2019	IISc Bangalore	
4	Optical Spectroscopy and Microscopy: Fundamentals of optical measurements and instrumentation	EBM203	MINOR MOOC	12 weeks	NPTEL	B.Tech Regulation 2019	IISc Bangalore	
5	Introduction to Biomedical Imaging Systems	EBM204	MINOR MOOC	12 weeks	NPTEL	B.Tech Regulation 2019	IIT Madras	Not allowed if EBT 383 minor course is taken
6	Medical Biomaterials	EBM205	MINOR MOOC	8 weeks	NPTEL	B.Tech Regulation 2019	IIT Madras	
7	Biophotonics	EBM206	MINOR MOOC	12 weeks	NPTEL	B.Tech Regulation 2019	IIT Kharagpur	
BASKET-III COMPUTING IN BIOMEDICAL ENGINEERING								
1	Applied Linear Algebra for Signal Processing, Data Analytics and Machine Learning	EBM300	MINOR MOOC	12 weeks	NPTEL	B.Tech Regulation 2019	IIT Kanpur	

2	Transport Phenomena in Biological Systems	EBM301	MINOR MOOC	12 weeks	NPTEL	B.Tech Regulation 2019	IIT Madras	
3	Mathematical Aspects of Biomedical Electronic System Design	EBM302	MINOR MOOC	12 weeks	NPTEL	B.Tech Regulation 2019	IISc Bangalore	
4	Numerical Methods And Simulation Techniques For Scientists And Engineers	EBM303	MINOR MOOC	8 weeks	NPTEL	B.Tech Regulation 2019	IIT Guwahati	
5	Numerical Methods for Engineers	EBM304	MINOR MOOC	12 weeks	NPTEL	B.Tech Regulation 2019	IIT Madras	
6	Fuzzy Logic and Neural Networks	EBM305	MINOR MOOC	8 weeks	NPTEL	B.Tech Regulation 2019	IIT Kharagpur	
7	Essential Mathematics for Machine Learning	EBM306	MINOR MOOC	12 weeks	NPTEL	B.Tech Regulation 2019	IIT Roorkee	
8	Fundamentals Of Artificial Intelligence	EBM307	MINOR MOOC	12 weeks	NPTEL	B.Tech Regulation 2019	IIT Guwahati	

FOOD TECHNOLOGY

SL. No	Course	Course Code	Course Type	Duration	Offering Platform	B.Tech Regulation	Course Institution	Remarks
BASKET 1- FOOD ENGINEERING								
1	Fundamentals of Food Process Engineering	FTM100	MINOR MOOC	12 weeks	SWAYAM/ NPTEL	B.Tech Regulation 2019	IITKGP	
2	Food Science & Processing	FTM101	MINOR MOOC	12 weeks	SWAYAM/ NPTEL	B.Tech Regulation 2019	English and Foreign Languages University, Hyderabad	
BASKET 2- FOOD SCIENCE AND QUALITY CONTROL								
1	Process Equipment Design	FTM200	MINOR MOOC	12 weeks	SWAYAM/ NPTEL	B.Tech Regulation 2019	IIT Roorke	
2	Food Laws and Standards	FTM201	MINOR MOOC	12 weeks	SWAYAM/ NPTEL	B.Tech Regulation 2019	IGNOU	
3	Food Microbiology and food safety	FTM202	MINOR MOOC	15 weeks	SWAYAM/ NPTEL	B.Tech Regulation 2019	Central University of Haryana	
BASKET 3- FOOD PRODUCT DEVELOPMENT AND MANAGEMENT								
1	Technology of Fermented Cheese ,Ice cream and By- products	FTM300	MINOR MOOC	16 weeks	SWAYAM/ NPTEL	B.Tech Regulation 2019	IGNOU	
2	Functional Foods and Nutraceuticals	FTM301	MINOR MOOC	15 weeks	SWAYAM/ NPTEL	B.Tech Regulation 2019	Rashtrasant Tukadoji Maharaj Nagpur University,	
3	Entrepreneurship	FTM302	MINOR MOOC	12 weeks	SWAYAM/ NPTEL	B.Tech Regulation 2019	IITM	

List of Approved MOOC Courses for B.Tech Minor in Engineering

INDUSTRIAL ENGINEERING

SL. No	Course	Course Code	Course Type	Duration	Offering Platform	B.Tech Regulation	Course Institution	Remarks
BASKET-I OPERATIONS MANAGEMENT								
1	Data Analytics with Python	IEM100	MINOR MOOC	12 weeks	NPTEL	B.Tech Regulation 2019	IITR	
2	Learning Analytics Tools	IEM101	MINOR MOOC	12 weeks	NPTEL	B.Tech Regulation 2019	IITB	
3	Quality Design and Control	IEM102	MINOR MOOC	12 weeks	NPTEL	B.Tech Regulation 2019	IITKGP	
4	Project management for managers	IEM103	MINOR MOOC	12 weeks	NPTEL	B.Tech Regulation 2019	IITR	
5	E-business	IEM104	MINOR MOOC	12 weeks	NPTEL	B.Tech Regulation 2019	IITKGP	
6	Entrepreneurship Essentials	IEM105	MINOR MOOC	12 weeks	NPTEL	B.Tech Regulation 2019	IITKGP	
7	Introduction to Econometrics	IEM106	MINOR MOOC	12 weeks	NPTEL	B.Tech Regulation 2019	IITM	
8	Industrial Safety Engineering	IEM107	MINOR MOOC	12 weeks	NPTEL	B.Tech Regulation 2019	IITKGP	
9	Introduction to industry 4.0 and industrial internet of things	IEM108	MINOR MOOC	12 weeks	NPTEL	B.Tech Regulation 2019	IITKGP	
10	Quality control and improvement with minitab	IEM109	MINOR MOOC	8 weeks	NPTEL	B.Tech Regulation 2019	IITKGP	

List of Approved MOOC Courses for B.Tech Minor in Engineering

INFORMATION TECHNOLOGY

SL. No	Course	Course Code	Course Type	Duration	Offering Platform	B.Tech Regulation	Course Institution	Remarks
BASKET-I WEB AND ANDROID DEVELOPMENT								
1	Introduction to Database Systems	ITM100	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IIT Madras	
2	Programming in Java	ITM101	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IIT Kharagpur	
BASKET-II COMPUTER COMMUNICATIONS								
1	Computer Networks and Internet Protocol	ITM200	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IIT Kharagpur	
2	Optical Communications	ITM201	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IIT Kanpur	
3	Principles of Digital Communications	ITM202	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IIT Delhi	
4	Social Networks	ITM203	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IIT Ropar	
5	Introduction to internet of things	ITM204	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IIT Kharagpur	
6	Modern digital communication techniques	ITM205	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IIT Kharagpur	
BASKET-III SOFTWARE ENGINEERING								
1	Software Engineering	ITM300	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IIT Kharagpur	
2	Software Project Management	ITM301	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IIT Kharagpur	

List of Approved MOOC Courses for B.Tech Minor in Engineering

INSTRUMENTATION AND CONTROL ENGINEERING

SL. No	Course	Course Code	Course Type	Duration	Offering Platform	B.Tech Regulation	Course Institution	Remarks
BASKET-I PROCESS CONTROL AND AUTOMATION								
1	Sensors and Actuators	ICM100	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IISc	If the student has not takenICT281 Introduction To Sensors And Transducers as an elective course.
2	Control engineering	ICM101	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IITM	If the student has not takenICT282 Linear System Analysis as an elective course.
3	Control systems	ICM102	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IITM	If the student has not taken ICT282 Linear System Analysis as an elective course.
4	Industrial Automation and Control	ICM103	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IIT KGP	If the student has not taken ICT381 Process Automation as an elective course.
5	Chemical Process Instrumentation	ICM104	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IIT KGP	If the student has not taken ICT382 Principles Of Process Controlas an elective course.
6	Chemical Process Control	ICM105	MINOR MOOC	8 Weeks	NPTEL	B.Tech Regulation 2019	IITB	If the student has not taken ICT382 Principles Of Process Controlas an elective course.

List of Approved MOOC Courses for B.Tech Minor in Engineering

MECHANICAL ENGINEERING

SL. No	Course	Course Code	Course Type	Duration	Offering Platform	B.Tech Regulation	Course Institution	Remarks
BASKET-III MATERIALS AND MANUFACTURING ENGINEERING								
1	Theory Of Production Processes	MEM300	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IIT Roorkee	Repacing course in S4
2	Fundamentals Of Manufacturing Processes	MEM301	MINOR MOOC	16 Weeks	NPTEL	B.Tech Regulation 2019	IIT Roorkee	Repacing course in S4
3	Mathematical Modeling Of manufacturing Processes	MEM302	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IIT, Guwahati	Replacing Course MET286 Manufacturing Technology
4	Introduction to Machining and Machining Fluids	MEM303	MINOR MOOC	8 Weeks	NPTEL	B.Tech Regulation 2019	IIT Tirupathi & IIT G	To replace course MET 385 MachineTools Engineering
5	Introduction to Mechanical Micro Machining	MEM304	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IITKGP	To replace course MET 385 MachineTools Engineering
6	Advanced Machining Process	MEM305	MINOR MOOC	8 weeks	NPTEL	B.Tech Regulation 2019	IITG	Replacing course in S4

	List of Approved MOOC Courses for B.Tech Minor in Engineering							
	MECHANICAL PRODUCTION ENGINEERING							
SL. No	Course	Course Code	Course Type	Duration	Offering Platform	B.Tech Regulation	Course Institution	Remarks
BASKET-I INSPECTION AND QUALITY CONTROL								
1	Inspection and Quality Control in manufacturing	MPM100	MINOR MOOC	8 weeks	NPTEL	B.Tech Regulation 2019	IITR	
2	Principles of Mechanical Measurement	MPM101	MINOR MOOC	12 weeks	NPTEL	B.Tech Regulation 2019	IIT Guwahati	
3	Quality design and control	MPM102	MINOR MOOC	12 weeks	NPTEL	B.Tech Regulation 2019	IIT Kharagpur	
4	Fundamentals of artificial intelligence	MPM103	MINOR MOOC	12 weeks	NPTEL	B.Tech Regulation 2019	IIT Guwahati	
5	Engineering Metrology	MPM104	MINOR MOOC	12 weeks	NPTEL	B.Tech Regulation 2019	IIT Kanpur	
6	Industrial automation and control	MPM105	MINOR MOOC	12 weeks	NPTEL	B.Tech Regulation 2019	IIT Kharagpur	

List of Approved MOOC Courses for B.Tech Minor in Engineering

MECHATRONICS

SL. No	Course	Course Code	Course Type	Duration	Offering Platform	B.Tech Regulation	Course Institution	Remarks
BASKET-I AUTOMATION								
1	Introduction to Machine Learning	MRM100	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IITM	If the student has not taken ICT292 Engineering optimization as an elective
2	Industrial Automation And Control	MRM101	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IITKGP	
3	Fuzzy Sets, Logic and Systems & Applications	MRM102	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IITK	
4	Introduction to Industry 4.0 and Industrial Internet of Things	MRM103	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IITKGP	
5	Embedded Systems Design	MRM104	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IITKGP	If the student has not taken MRT381 Embedded systemsas an elective course.
6	Sensors and Actuators	MRM105	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IISc	If the student has not taken MRT281 introduction to Sensors and Actuators as an elective course.
7	Analog Electronic Circuits	MRM106	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IITKGP	
BASKET-II AUTOMATION SYSTEMS								
1	Introduction to Machine Learning	MRM200	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IITM	
2	Industrial Automation And Control	MRM201	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IITKGP	
3	Robotics: Basics and Selected Advanced Concepts	MRM202	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IISc	
4	Introduction to Industry 4.0 and Industrial Internet of Things	MRM203	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IITKGP	
5	AI:Knowledge Representation and Reasoning	MRM204	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IITM	
6	Programming in Java	MRM205	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IITKGP	
7	Sensors and Actuators	MRM206	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IISc	If the student has not takenMRT281 introduction to Sensors and Actuators as an elective course.
8	Advanced Concepts in Fluid mechanics	MRM207	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IITKGP	
9	Industrial Automation And Control	MRM208	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IITKGP	If the student has not takenMRT384Advanced Automation Systemas an elective course.

List of Approved MOOC Courses for B.Tech Minor in Engineering

PRODUCTION ENGINEERING

SL. No	Course	Course Code	Course Type	Duration	Offering Platform	B.Tech Regulation	Course Institution	Remarks
BASKET-I QUALITY ENGINEERING								
1	Quality Control and Improvement with MINITAB	PEM100	MINOR MOOC	8 weeks	NPTEL	B.Tech Regulation 2019	IIT Bombay	
2	Design for quality, manufacturing and assembly	PEM101	MINOR MOOC	8 weeks	NPTEL	B.Tech Regulation 2019	IIT Madras	
3	Quality design and control	PEM102	MINOR MOOC	12 weeks	NPTEL	B.Tech Regulation 2019	IIT Kharagpur	
4	Design and Analysis of Experiments	PEM103	MINOR MOOC	12 weeks	NPTEL	B.Tech Regulation 2019	IIT Kharagpur	
5	Six Sigma	PEM104	MINOR MOOC	12 weeks	NPTEL	B.Tech Regulation 2019	IIT Kharagpur	
6	Introduction to Stochastic Processes	PEM105	MINOR MOOC	12 weeks	NPTEL	B.Tech Regulation 2019	IIT Bombay	
BASKET-II DESIGN ENGINEERING								
1	Functional and Conceptual Design	PEM200	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IIT Madras	
2	System design for sustainability	PEM201	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IIT Guwahati	
3	Control Systems	PEM202	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IIT Madras	
4	Product design and Manufacturing	PEM203	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IIT Kanpur	
5	Work System Design	PEM204	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IIT Roorkee	
6	Fundamentals of Automotive Systems	PEM205	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IIT Madras	
BASKET-III ENGINEERING MATERIALS								
1	Carbon materials and Manufacturing	PEM300	MINOR MOOC	12 weeks	NPTEL	B.Tech Regulation 2019	IIT Mandi	
2	Material Characterization	PEM301	MINOR MOOC	12 weeks	NPTEL	B.Tech Regulation 2019	IIT Madras	
3	Nature and Properties of Materials	PEM302	MINOR MOOC	8 weeks	NPTEL	B.Tech Regulation 2019	IIT Kanpur	
4	Non - Metallic Materials	PEM303	MINOR MOOC	12 weeks	NPTEL	B.Tech Regulation 2019	IIT Kharagpur	
5	Advanced Materials and Processes	PEM304	MINOR MOOC	12 weeks	NPTEL	B.Tech Regulation 2019	IIT Kharagpur	
6	Introduction to Composite	PEM305	MINOR MOOC	12 weeks	NPTEL	B.Tech Regulation 2019	IIT Kanpur	

List of Approved MOOC Courses for B.Tech Minor in Engineering

ROBOTICS & AUTOMATION

SL. No	Course	Course Code	Course Type	Duration	Offering Platform	B.Tech Regulation	Course Institution	Remarks
BASKET-I ROBOTICS & AUTOMATION								
1	Introduction to Robotics	RAM100	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IIT Madras	If the student has not takenRAT281 – Basics of Roboticsas an elective course.
2	Industrial Automation and Control	RAM101	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IIT, Khargpur	If the student has not takenRAT282 – Introduction to Industrial Automationas an elective course.
3	Automation in Production Systems and Management	RAM102	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IIT Kharagpur	
4	Fundamentals of Artificial Intelligence	RAM103	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IIT Guwahati	If the student has not takenRAT381 – AI and Machine Learning for Roboticsas an elective course.
5	Computer Vision and Image Processing – Fundamentals and Application	RAM104	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IIT Guwahati	
6	Wheeled Mobile Robots	RAM105	MINOR MOOC	8 Weeks	NPTEL	B.Tech Regulation 2019	IIT Madras, IIT Palakkad	If the student has not takenRAT382 – Introduction to Mobile Roboticsas an elective course.