



**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
<b>BASKET-I SIGNAL PROCESSING</b>								
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	
<b>BASKET-II ELECTRONICS CIRCUITS</b>								
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	
<b>BASKET-III INSTRUMENTATION AND CONTROL</b>								
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
<b>BASKET-I BIOMEDICAL IMAGING</b>								
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	
<b>BASKET-II REHABILITATION ENGINEERING</b>								
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	
<b>BASKET-III BIOMEDICAL COMPUTATIONAL METHODS</b>								
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
<b>BASKET I - BIOPROCESSING</b>								
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	
<b>BASKET II - CELL &amp; MOLECULAR BIOLOGY</b>								
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	
<b>BASKET-III HEALTH SAFETY ENVIRONMENT</b>								
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
<b>BASKET-I PROCESS SAFETY</b>								
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	
<b>BASKET-II PETROLEUM AND PETROCHEMICALS</b>								
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	
<b>BASKET-III MATERIALS SCIENCE AND ENGINEERING</b>								
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
<b>BASKET- 1 SOFTWARE ENGINEERING</b>								
1	Software Engineering	CSM100	MINOR MOOC	12 weeks	SWAYAM/ NPTEL	B.Tech Regulation 2019	IIT KGP	
<b>BASKET- 2 MACHINE LEARNING</b>								
1	Introduction to Machine Learning	CSM200	MINOR MOOC	8 weeks	SWAYAM/ NPTEL	B.Tech Regulation 2019	IIT KGP	
<b>BASKET-3 NETWORKING</b>								
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
<b>BASKET-I BIOMEDICAL SIGNAL &amp; IMAGE PROCESSING</b>								
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	
<b>BASKET-II BIOMEDICAL INSTRUMENTATION</b>								
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	
<b>BASKET-III COMPUTING IN BIOMEDICAL ENGINEERING</b>								
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	



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

**FOOD TECHNOLOGY**

SL. No	Course	Course Code	Course Type	Duration	Offering Platform	B.Tech Regulation	Course Institution	Remarks
<b>BASKET 1- FOOD ENGINEERING</b>								
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	
<b>BASKET 2- FOOD SCIENCE AND QUALITY CONTROL</b>								
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	
<b>BASKET 3- FOOD PRODUCT DEVELOPMENT AND MANAGEMENT</b>								
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
<b>BASKET-I OPERATIONS MANAGEMENT</b>								
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
<b>BASKET-I WEB AND ANDROID DEVELOPMENT</b>								
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	
<b>BASKET-II COMPUTER COMMUNICATIONS</b>								
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	
<b>BASKET-III SOFTWARE ENGINEERING</b>								
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
<b>BASKET-I PROCESS CONTROL AND AUTOMATION</b>								
1	Sensors and Actuators	ICM100	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IISc	If the student has not taken ICT281 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 taken ICT282 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 Control as 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 Control as 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
<b>BASKET-III MATERIALS AND MANUFACTURING ENGINEERING</b>								
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
<b>BASKET-I INSPECTION AND QUALITY CONTROL</b>								
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
<b>BASKET-I AUTOMATION</b>								
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 systems as 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	
<b>BASKET-II AUTOMATION SYSTEMS</b>								
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 taken MRT281 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 taken MRT384 Advanced Automation Systems as an elective course.



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### PRODUCTION ENGINEERING

SL. No	Course	Course Code	Course Type	Duration	Offering Platform	B.Tech Regulation	Course Institution	Remarks
<b>BASKET-I QUALITY ENGINEERING</b>								
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	
<b>BASKET-II DESIGN ENGINEERING</b>								
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	
<b>BASKET-III ENGINEERING MATERIALS</b>								
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	



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**ROBOTICS & AUTOMATION**

SL. No	Course	Course Code	Course Type	Duration	Offering Platform	B.Tech Regulation	Course Institution	Remarks
<b>BASKET-I ROBOTICS &amp; AUTOMATION</b>								
1	Introduction to Robotics	RAM100	MINOR MOOC	12 Weeks	NPTEL	B.Tech Regulation 2019	IIT Madras	If the student has not taken RAT281 – Basics of Robotics as 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 taken RAT282 – Introduction to Industrial Automation as 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 taken RAT381 – AI and Machine Learning for Robotics as 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 taken RAT382 – Introduction to Mobile Robotics as an elective course.