MINOR DEGREE COURSE LIST

Subject: With reference to Minor degree registered students with USN **XXX22XXXXX** (Regular), USN **XXX23XX4XX** (Diploma Lateral Entry), USN **XXX23XX6XX** (B.Sc Lateral Entry), **XXX23XXXXX** (Regular), USN **XXX24XX4XX** (Diploma Lateral Entry), USN **XXX24XX6XX** (B.Sc Lateral Entry)...

- **Eligibility:** Students should obtain a CGPA>=5 at the end of third semester and should maintain CGPA>=5 until the completion of their regular degree. Students have to complete a Minor degree from 4^{th} semester to 8^{th} semester.
- **Start of Registration:** Minor degree registration begins from the **4th semester**.
- Students who have registered for Minor degree must enrol in the program, attend quizzes and complete exams of program(courses) (totalling to 18 credits) in the **VTU online portal** (**https://online.vtu.ac.in/)** only and programs(courses) done in any other platforms will not be considered to award Minor degree.
- **Selection of course:** Students must select a program from the approved Minor degree list, ensuring the Minor degree is different from their major discipline.

  For instance, CS students can't select a Minor program from CS, but can opt for programs from other departments like ECE, Mechanical, etc., based on their interest
- All courses within the Minor should be chosen from a **single domain**, wherein the **Core courses are compulsory**. The remaining credits required to complete the 18-credit requirement for the Minor shall be fulfilled through **Elective courses** within the same domain. If the program offers more than 18 credits, students can choose courses up to the 18-credit limit.
- Exams for these courses will be conducted by **VTU** and it will be online mode.

Below are the steps for:

A. Program enrollment

B. Attending quizzes

C. Exam registration/application

D. Exam Slot booking

E. Attending Online Exams

A. Program Enrollment Procedure

1. Minor degree registration application approval is mandatory. Once approved, students can proceed with program enrollment.
2. Click on the **program link** provided next to each program in the below mentioned department wise eligible course list
3. You will be taken to the **Program Overview page** directly, Click on **Apply now** button.
4. Now you are enrolled in the Program, Click on **Profile** Picture then Click **My Learning**.
5. All the Courses and programs that you are enrolled in will be in **My Learning**. To view courses within a program, click the **View** button. You can Start accessing the Course content by clicking on **Start** button in front of the Course
   NOTE : Students who enroll in a Minor program cannot switch to a different program afterward.

B. Procedure to Attend Quiz

1. **Log in** to your account and navigate to the **Dashboard**.
2. Click on the **My Learning** tab in the **Dashboard**.
3. You will see a list of all the courses you are enrolled in.
4. Click on the **Start** button next to the course name.
5. You will be taken to the **Course Content** page.
6. Complete watching the video lessons for the course.
7. Scroll down to the **Quiz** section located under the video playing section.
8. Click on the **Quiz** section to view the available quizzes.
9. Select the quiz you want to attend and click on the **Start Quiz** button.

10. Read the **terms and conditions** carefully before proceeding.
11. Agree to the **terms and conditions** and click on the **Start Quiz** button again to begin the quiz.
12. Complete the quiz and **submit** your answers.
13. To **view** your quiz score, click on the **Leaderboard**.
14. You will see your **score** and **ranking** compared to other students.

NOTE : Each internal assessment consists of 25 questions, with a minimum passing score of 40% (10 out of 25). If a student fails to meet this threshold, a second attempt is allowed. However, in the second attempt, only the passing marks (40%) will be considered, regardless of the actual score.

C. Procedure for Exam Registration/Application

1. Click on **Exam** on the navigation bar on the **Home page**.
2. To register for Minor degree exams, click on **Exam Registration – Minor**.
3. **Login** into your account by entering login credentials, it will take you directly to the **exam registration form.**
4. At the bottom, there will be a field to select the course. In the dropdown select the course which you would like to appear for the exam.
5. Click on **Save and Continue**. Exam fee will be displayed.
6. Click on **Pay now** and complete the payment.
7. You can check the status of your exam application under **My Application** in the student dashboard.

D. Procedure for Exam Slot Booking:

1. **Log in** to your account and navigate to the **Dashboard**.
2. Click on the **My Application** tab in the **Dashboard**.
3. Check that your application status is **Paid** for the course you want to book a slot for.
4. Click on the **Book Now** button in front of the course name.
5. You will be taken to the **Slot Booking** page. View all booked slot details displayed on this page, including date, time, and exam status information.

6. Click on the **Book a slot** button to initiate the slot booking process. A slot booking pop-up window will appear, prompting you to select your preferred slot details.
7. Select the **course** from the **dropdown** menu.
8. Choose a **date and time** slot from the available options.
9. Verify that the selected slot details are correct.
10. Click on the **Book now** button to **confirm** your slot booking.
11. View Booked Slot Details in **Slot Booking** page for confirmation.

    NOTE : Quiz/assignment completion is mandatory before booking an exam slot.

E. Procedure for Attending Online Proctored Exam :

1. Go to **My Applications** and click **Book Now** next to your exam application.
2. On the **Slot booking page**, click the **Start** button next to your course at the scheduled date and time.
3. Read and agree to the **terms and conditions**.
4. Click **Enter Exam** to begin.
5. Complete the exam, **submit** your answers, and view your score

System requirement for online exam:

- Laptop or desktop with a working webcam & microphone.
- minimum of 4 GB RAM & dual core or above processor (pentium dual core or i3/i5/i7).
- 10mbps or above internet connection speed.
- latest updated Google Chrome browser.
- Operating system: Windows or Linux or Mac.

Instructions for attending online exam

- Students should take exams in a room with proper lighting and the background should be clear/plain.
- There should be no/minimal background noise.
- Students are not permitted to take exams in public places or while traveling. A quiet, private location is required
- Once the exam is started students should not navigate to other tabs/windows/browsers.

- Students are not permitted to wear earphones, headphones, or any electronic gadgets, including Bluetooth devices, during the exam/session.
- Exams will be automatically terminated if multiple faces/persons are detected.
- Students should not use or talk on mobile phones during examinations.
- Exams will be terminated automatically if the student's face is not clearly visible/if the student walks away from the screen during the examination.
- Closing the browser directly during the examination will result in termination of the exam automatically.

AEROSPACE ENGINEERING

1. Minor degree in Flight Mechanics - MOOC

https://online.vtu.ac.in/program-details/526a0cfa-71f1-4b35-b507-29418fa6f80f

Sl. No	Core Courses (Compulsory)	Duration	Credits	
01	Introduction to Airplane performance	8 weeks	2	All branches except Aerospace Engineering and Allied Branches
02	Aircraft Stability and Control	12 weeks	3	
03	Introduction to Aircraft Design	12 weeks	3	
04	Introduction to Aerospace Engineering - Flight	12 weeks	3	
05	Aerodynamic Design of Axial Flow Compressors & Fans	12 weeks	3	
	Elective Courses	**Duration**	**Credits**	
01	Combustion in air breathing aero engines	12 weeks	3	
02	Space Flight Mechanics	12 weeks	3	
03	UAV Design - Part II	8 weeks	2	
04	Introduction to Air breathing Propulsion	12 weeks	3	

BIO-TECHNOLOGY AND BIO- SCIENCE/ BIO-ENGINEERING

1. Minor degree in Bio processes:MOOC

https://online.vtu.ac.in/program-details/1a2207e0-e877-4e25-a5c8-87a0cbb51c17

Sl. No	Core Courses (Compulsory)	Duration	Credits	
01	Aspects of Biochemical Engineering	12 weeks	3	All branches except Bio-technology ,bio-science/ bio-engineering and Allied Branches
	OR Bioreactor Design and Analysis	8 weeks	2	
02	Principles Of Downstream Techniques In Bioprocess	12 weeks	3	
03	Material and Energy Balances	12 weeks	3	
04	Transport Phenomena in Biological Systems	12 weeks	3	
	Elective Courses	**Duration**	**Credits**	
01	Plant Cell Bioprocessing	8 weeks	2	
02	Bioenergy	8 weeks	2	
03	Metabolic Engineering	8 weeks	2	
04	Genetic Engineering: Theory and Application	12 weeks	3	
05	Thermodynamics for Biological Systems : Classical and Statistical Aspect	12 weeks	3	
06	Experimental Biotechnology	12 weeks	3	
07	Fundamental of Fluid Mechanics for Chemical and Biomedical Engineers	12 weeks	3	
08	Environmental Biotechnology	12 weeks	3	

2. Minor degree in Bio- Engineering - MOOC

https://online.vtu.ac.in/program-details/8bb10029-37ee-4fb8-acdd-b9a184391d41				
Sl. No	**Core Courses (Compulsory)**	**Duration**	**Credits**	All branches except Bio-technology a and Allied Branches
01	Bioengineering: An Interface with Biology and Medicine	8 weeks	2	
02	Cell Culture Technologies	8 weeks	2	
03	Medical Biomaterials	8 weeks	2	
04	Human Physiology	12 weeks	3	
	Elective Courses	**Duration**	**Credits**	
01	Tissue engineering	8 weeks	2	
02	Drug Delivery: Principles and Engineering	12 weeks	3	
03	Biomicrofluidics	4 weeks	1	
04	Introduction to mechanobiology	8 weeks	2	
05	Biomedical nanotechnology	4 weeks	1	
06	Applications of interactomics using Genomics and proteomics technologies	8 weeks	2	
07	Transport Phenomena in Biological Systems	12 weeks	3	
08	Bio-interface Engineering	8 weeks	2	
09	Fundamental of Fluid Mechanics for Chemical and Biomedical Engineers	12 weeks	3	
10	Neural Science for Engineers	12 weeks	3	
11	Organ Printing	8 weeks	2	
12	Cellular biophysics: a framework for quantitative biology	8 weeks	2	
13	Biomechanics	12 weeks	3	
14	Enzyme Sciences and Technology	12 weeks	3	

3. Minor degree in Bioscience - MOOC

https://online.vtu.ac.in/program-details/4985018f-3323-4040-a9c9-acf7b1a96ed2				
Sl. No	**Core Courses (Compulsory)**	**Duration**	**Credits**	All branches except Bio-technology ,bio-science/ bio-engineering and Allied Branches
01	Biochemistry	12 weeks	3	
02	Structural Biology	12 weeks	3	
03	Cell Biology: Cellular organization, division and processes	8 weeks	2	
04	Basics of Biology	12 weeks	3	
	Elective Courses	**Duration**	**Credits**	
01	Plant Developmental Biology	4 weeks	1	
02	Cell Culture Technologies	8 weeks	2	
03	Human Molecular Genetics	4 weeks	1	
04	Experimental Biochemistry	12 weeks	3	
05	Genetic Engineering: Theory and Application	12 weeks	3	
06	Interactomics : Basics & Applications	12 weeks	3	
07	Introduction to proteomics	8 weeks	2	
08	Experimental Biotechnology	12 weeks	3	
09	Introduction to Developmental Biology	12 weeks	3	
10	Fundamentals of Protein Chemistry	12 weeks	3	
11	Neural Science for Engineers	12 weeks	3	
12	Genome Editing and Engineering	12 weeks	3	
13	RNA Biology	12 weeks	3	
14	Enzyme Sciences and Technology	12 weeks	3	
15	Host-Pathogen Interaction (Immunology)	12 weeks	3	
16	Neurobiology	4 weeks	1	

4. Minor degree in Computational Biology - MOOC

https://online.vtu.ac.in/program-details/aa05e5ff-ef83-4df0-ae6a-ac4d2be11fac				
Sl. No	**Core Courses (Compulsory)**	**Duration**	**Credits**	All branches except Bio-technology , bio-science/ bio-engineer and Allied Branches
01	BioInformatics: Algorithms and Applications	12 weeks	3	
02	Programming, Data Structures and Algorithms in Python	8 weeks	2	
	OR MATLAB Programming for Numerical Computation	12 weeks	3	
	OR Introduction to R Software	8 weeks	2	
03	Functional Genomics	4 weeks	1	
04	Next Generation Sequencing Technologies : Data Analysis And Applications	12 weeks	3	
	Elective Courses	**Duration**	**Credits**	
01	Computer Aided Drug Design	**8 Weeks**	2	
02	Introduction to Dynamical Models in Biology	4 weeks	1	
03	Introduction to Proteogenomics	12 weeks	3	
04	Algorithms for protein modelling and engineering	12 weeks	3	
05	Computational Neuroscience	12 weeks	3	
06	Data Analysis for Biologists	8 weeks	2	

CHEMICAL ENGINEERING

1. Minor degree in Fundamentals and Applications of Chemical Engineering - MOOC

https://online.vtu.ac.in/program-details/1255a327-3e8e-46ab-afc3-0ab0a4c1f124

Sl. No	Core Courses (Compulsory)	Duration	Credits	
01	Basic Principles and Calculations in Chemical Engineering	12 weeks	3	All branches except Chemical Engineering and Allied Branches
	OR Material & Energy Balance Computations	12 weeks	3	
02	Chemical Reaction Engineering-I	12 weeks	3	
03	Chemical Engineering Thermodynamics	12 weeks	3	
	Elective Courses	**Duration**	**Credits**	
01	Mass Transfer Operations - I	12 weeks	3	
	OR Mass Transfer Operations II	12 weeks	3	
	OR Mechanical Unit Operations	12 weeks	3	
02	Heat Transfer	12 weeks	3	
03	Solid-Fluid Operations	12 weeks	3	

2. Minor degree in Computational Chemical Engineering - MOOC

https://online.vtu.ac.in/program-details/c89d92ca-8bce-4c7c-a8cb-ab802888f320

Sl. No	Core Courses (Compulsory)	Duration	Credits	
01	Numerical Methods for Engineers	12 weeks	3	All branches except Chemical Engineering and Allied Branches
02	Process Control - Design, Analysis and Assessment	12 weeks	3	
	OR Chemical Process Control	8 weeks	2	
	Elective Courses	**Duration**	**Credits**	
01	Optimization in Chemical Engineering	12 weeks	3	
02	Computational Fluid Dynamics	12 weeks	3	
03	Model Predictive Control: Theory and Applications	12 weeks	3	
04	Computer Aided Applied Single Objective Optimization	12 weeks	3	

05	Aspen Plus® simulation software - a basic course for beginners	12 weeks	3	
06	Mathematical modeling and simulation of chemical engineering process	12 weeks	3	

3. Minor degree in Energy and Environment - MOOC

https://online.vtu.ac.in/program-details/620c4c31-c144-4aa8-a7f5-92e92f21a24e

Sl. No	Core Courses (Compulsory)	Duration	Credits	
01	Environmental Quality Monitoring & Analysis	12 weeks	3	
02	Non-Conventional Energy Resources	12 weeks	3	
	OR Renewable Energy Engineering: Solar, Wind and Biomass Energy Systems	12 weeks	3	
03	Basic Environmental Engineering and Pollution Abatement	12 weeks	3	
	Elective Courses	**Duration**	**Credits**	
01	Waste to Energy Conversion	8 weeks	2	All branches except Chemical Engineering and Allied Branches
02	Technologies for clean and renewable energy production	8 weeks	2	
03	Energy conservation and waste heat recovery	12 weeks	3	
04	Energy Economics and Policy	8 weeks	2	
05	Electrochemical Technology in Pollution Control	8 weeks	2	
06	Biomass Conversion and Biorefinery	12 weeks	3	
07	Electrochemical Energy Storage	12 weeks	3	
08	Physics of Renewable Energy Systems	12 weeks	3	
09	Physico-chemical processes for wastewater treatment	12 weeks	3	
10	Hydrogen Energy: Production, Storage, Transportation and Safety	12 weeks	3	

11	Ecology and Environment	8 weeks	2	
12	Energy Conversion Technologies (Biomass And Coal)	8 weeks	2	
13	Sustainable Power Generation Systems	12 weeks	3	
14	Sustainable Energy Technology	12 weeks	3	

4. Minor degree in Chemical Process Design and Engineering Practice - MOOC

https://online.vtu.ac.in/program-details/20204351-396a-4185-8bc9-451e76f3b4fb

Sl. No	Core Courses (Compulsory)	Duration	Credits	
01	Basic Principles and Calculations in Chemical Engineering	12 weeks	3	
	OR Material & Energy Balance Computations	12 weeks	3	
02	Chemical Reaction Engineering-I	12 weeks	3	
03	Chemical Engineering Thermodynamics	12 weeks	3	
	Elective Courses	**Duration**	**Credits**	
01	Process Control - Design, Analysis and Assessment	12 weeks	3	All branches except Chemical Engineering and Allied Branches
02	Plant Design and Economics	12 weeks	3	
03	Process Equipment Design	12 weeks	3	
04	Principles and Practices of Process Equipment and Plant Design	12 weeks	3	
05	Chemical Process Utilities	12 weeks	3	
06	Advanced process dynamics	12 weeks	3	
07	Chemical Process Technology	12 weeks	3	

5. Minor degree in Chemical Engineering: Principles, Processes, and Simulations - MOOC

https://online.vtu.ac.in/program-details/18a4dd71-c1fe-4b93-b337-1158f9743272

Sl. No	Core Courses (Compulsory)	Duration	Credits	
01	Basic Principles and Calculations in Chemical Engineering	12 weeks	3	All branches except Chemical Engineering and Allied Branches
	OR Material & Energy Balance Computations	12 weeks	3	
02	Chemical Reaction Engineering-I	12 weeks	3	
03	Chemical Engineering Thermodynamics	12 weeks	3	
	Elective Courses	**Duration**	**Credits**	
01	Transport phenomena	12 weeks	3	
	OR Continuum Mechanics and Transport Phenomena	12 weeks	3	
	OR Transport Processes	12 weeks	3	
02	Fluid and Particle Mechanics	12 weeks	3	
	OR Fundamental of Fluid Mechanics for Chemical and Biomedical Engineers	12 weeks	3	
03	Advanced Thermodynamics and Molecular Simulations	12 weeks	3	
04	Introduction to interfacial waves	12 weeks	3	
05	Advanced process dynamics	12 weeks	3	
06	Advanced Reaction Engineering	12 weeks	3	
07	Fundamentals Of Statistical Thermodynamics	12 weeks	3	
	OR Applied Statistical Thermodynamics	12 weeks	3	

CIVIL ENGINEERING

1.Minor degree in Construction Materials Technology - MOOC

https://online.vtu.ac.in/program-details/a61c5f8c-7508-400d-9c82-cf045583121a

Sl. No	Core Courses (Compulsory)	Duration	Credits	
01	Concrete Technology	12 weeks	3	
02	Advanced Concrete Technology	12 weeks	3	
03	Modern Construction materials	12 weeks	3	
04	Basic construction materials	12 weeks	3	
	Elective Courses	**Duration**	**Credits**	
01	Hydration, Porosity and Strength of Cementitious Materials	08 weeks	2	All branches except Civil Engineering and Allied Branches
02	Advanced Topics in the Science and Technology of Concrete	04 weeks	1	
03	Characterization of Construction Materials	12 weeks	3	
04	Maintenance and Repair of Concrete Structures	12 weeks	3	
05	Sustainable Materials and Green Buildings	12 weeks	3	
06	Building Materials and Composites	12 weeks	3	
07	Development and Applications of Special Concretes	12 weeks	3	
08	Environmental Impact Assessment	12 weeks	3	
09	Admixtures And Special Concretes	12 weeks	3	

2. Minor degree in Structural Analysis- MOOC

https://online.vtu.ac.in/program-details/890e8b0e-6422-4491-a1f3-d1f96717fdd6

Sl. No	Core Courses (Compulsory)	Duration	Credits	
01	Engineering Mechanics - Statics and Dynamics	8 weeks	2	
02	Mechanics of Solids	12 weeks	3	
03	Structural Analysis - I	12 weeks	3	

04	Matrix Method of Structural Analysis	12 weeks	3	All branches except Civil Engineering and Allied Branches
05	Dynamics of Structures	12 weeks	3	
06	Strength Of Materials - IITM	12 weeks	3	
	Elective Courses	**Duration**	**Credits**	
01	Mechanics of Materials	12 weeks	3	
	OR Theory of Elasticity	12 weeks	3	
02	Finite Element Method and Computational Structural Dynamics	12 weeks	3	
03	Soil Structure Interaction	12 weeks	3	
04	Sustainable Materials and Green Buildings	12 weeks	3	
05	Advanced Soil Mechanics	12 weeks	3	
06	Elastic Stability of Structures	12 weeks	3	
07	Geotechnical Earthquake Engineering	12 weeks	3	

3. Minor degree in Structural Design - MOOC

https://online.vtu.ac.in/program-details/052452b1-e139-42ea-a8ae-ca1ab97e6a8f

Sl. No	Core Courses (Compulsory)	Duration	Credits	
01	Engineering Mechanics - Statics and Dynamics	8 weeks	2	All branches except Civil Engineering and Allied Branches
02	Mechanics of Solids	12 weeks	3	
03	Structural Analysis - I	12 weeks	3	
04	Matrix Method of Structural Analysis	12 weeks	3	
05	Design of reinforced concrete structures	12 weeks	3	
06	Design of Steel Structures	12 weeks	3	
	Elective Courses	**Duration**	**Credits**	
01	Design of Masonry Structures	12 weeks	3	
02	Bridge Engineering	12 weeks	3	
03	Retrofitting and Rehabilitation of Civil Infrastructure	12 weeks	3	

04	Design of connections in steel structures	4 weeks	1	
05	Geotechnical Earthquake Engineering	12 weeks	3	
06	Earth Sciences For Civil Engineering (Hindi)	8 weeks	2	
07	Advanced Reinforced Concrete Design	12 weeks	3	

4. **Minor degree in Environment - MOOC**

https://online.vtu.ac.in/program-details/8d2764d9-21e6-41d2-98e4-1da1668d3b40

Sl. No	**Core Courses (Compulsory)**	**Duration**	**Credits**	
01	Applied Environmental Microbiology	12 weeks	3	All branches except Civil Engineering and Allied Branches
02	Environmental Engineering-Chemical Processes	12 weeks	3	
03	Integrated Waste Management for a Smart City	12 weeks	3	
04	Sustainable Engineering Concepts and Life Cycle Analysis	8 weeks	2	
05	Wastewater Treatment and Recycling	12 weeks	3	
06	Air pollution and Control	12 weeks	3	
	Elective Courses	**Duration**	**Credits**	
01	Electronic Waste Management - Issues And Challenges	4 weeks	1	
02	Energy Efficiency, Acoustics and Day lighting in Building	12 weeks	3	
03	Environmental Remediation of Contaminated Sites	12 weeks	3	
04	Sustainable River Basin Management	8 weeks	2	
05	Plastic Waste Management	8 weeks	2	
06	Geographic Information Systems	12 weeks	3	
07	Remote Sensing: Principles and Applications	12 weeks	3	

08	Environmental Impact Assessment	12 weeks	3	
09	Microwave Remote Sensing in Hydrology	12 weeks	3	
10	Groundwater hydrology and management	12 weeks	3	
11	Rural Water Resources Management	12 weeks	3	
12	Environmental Science	12 weeks	3	

FACULTY DISCIPLINE

1. Minor degree in Faculty Domain- Fundamental:MOOC				
Sl. No	**Core Courses (Compulsory)**	**Duration**	**Credits**	All branches except Faculty Discipline and Allied Branches
01	Effective Engineering Teaching in Practice	4 weeks	1	
02	Ethics in Engineering Practice	8 weeks	2	
03	Introduction to Professional Scientific Communication	4 weeks	1	
	OR Effective Writing	4 weeks	1	
04	Teaching And Learning in Engineering (TALE)	4 weeks	1	
	OR Teaching and Learning in General Programs: TALG	4 weeks	1	
05	Accreditation and Outcome Based Learning	8 weeks	2	
	OR Outcome Based Pedagogic Principles for Effective Teaching	4 weeks	1	
	OR NBA Accreditation and Teaching - Learning in Engineering (NATE)	12 weeks	3	
	Elective Courses	**Duration**	**Credits**	
01	Learning Analytics Tools	12 weeks	3	
02	Introduction to Research	8 weeks	2	
03	Introduction to Basic Cognitive Processes	8 weeks	2	
04	Designing learner-centric e-learning in STEM disciplines	4 weeks	1	

05	Handling Large-Scale Unit Level Data Using STATA	8 weeks	2	
06	Towards an Ethical Digital Society: From Theory to Practice	4 weeks	1	

2. Minor degree in Faculty Domain- Advanced:MOOC

Sl. No	Core Courses (Compulsory)	Duration	Credits	
01	Effective Engineering Teaching in Practice	4 weeks	1	All branches except Faculty Discipline and Allied Branches
02	Ethics in Engineering Practice	8 weeks	2	
03	Introduction to Professional Scientific Communication	4 weeks	1	
04	Teaching And Learning in Engineering (TALE	4 weeks	1	
	OR Teaching and Learning in General Programs: TALG	4 weeks	1	
05	Accreditation and Outcome Based Learning	8 weeks	2	
	OR Outcome Based Pedagogic Principles for Effective Teaching	4 weeks	1	
	OR NBA Accreditation and Teaching - Learning in Engineering (NATE)	12 weeks	3	
	Elective Courses	**Duration**	**Credits**	
01	Designing Learner-Centric MOOCs	4 weeks	1	
02	Qualitative Research Methods and Research Writing	12 weeks	3	
	OR Learning Analytics Tools	12 weeks	3	
03	Development Research Methods	12 weeks	3	
04	Educational Leadership	12 weeks	3	
	OR Organization Development and Change in 21st Century	8 weeks	2	
05	Introduction on Intellectual Property to Engineers and Technologists	8 weeks	2	
06	Intellectual Property	12 weeks	3	
07	Patent Law for Engineers and Scientists	12 weeks	3	

08	Training of Trainers	12 weeks	3	
09	Entrepreneurship	12 weeks	3	
10	Towards an Ethical Digital Society: From Theory to Practice	4 weeks	1	
11	Education for Sustainable Development	12 weeks	3	
12	Training and Development	12 weeks	3	
13	Leadership and Team Effectiveness	12 weeks	3	

HUMANITIES AND SOCIAL SCIENCE

1. Minor degree in English Studies: - MOOC

https://online.vtu.ac.in/program-details/050afa17-153a-4689-bc6c-a4e929c63255

Sl. No	Core Courses (Compulsory)	Duration	Credits	
01	Introduction to Cultural Studies	12 weeks	3	All branches except Humanities and Social science and Allied Branches
02	Literary Criticism (From Plato to Leavis)	12 weeks	3	
	OR Literary Theory and Literary Criticism	8 weeks	2	
	OR Introduction to Literary Theory	8 weeks	2	
03	English Literature of the Romantic Period, 1798 - 1832	8 weeks	2	
04	Feminist Writings	12 weeks	3	
	OR Gender and Literature	8 weeks	2	
05	History of English Language and Literature	12 weeks	3	
	Elective Courses	**Duration**	**Credits**	
01	Indian Fiction in English	12 weeks	3	
	OR Introduction to Modern Indian Drama	8 weeks	2	
02	Twentieth Century Fiction	12 weeks	3	

	OR The Nineteenth-Century English Novel	12 weeks	3	
03	American Literature & Culture	12 weeks	3	
04	Disability Studies: An introduction	8weeks	2	
05	Postcolonial Literature	4 weeks	1	
06	Introduction to World Literature	12 weeks	3	
07	Literature and Life	12 weeks	3	
08	Contextualizing Gender	12 weeks	3	

2. Minor Degree in Psychology - MOOC

https://online.vtu.ac.in/program-details/a6ef8e3d-a6e4-4865-b422-29ec9b82727f

Sl. No	Core Courses (Compulsory)	Duration	Credits	
01	Introduction to Psychology	8 weeks	2	All branches except Humanities and Social science and Allied Branches
	OR Positive Psychology	8 weeks	2	
	OR Human Behavior	8 weeks	2	
02	Introduction to Cognitive Psychology	12 weeks	3	
	OR Introduction to Advanced Cognitive Processes	8 weeks	2	
03	Introduction to Brain &Behaviour	8 weeks	2	
	Elective Courses	**Duration**	**Credits**	
01	How the Brain Creates Mind	4 weeks	1	
	OR Psychiatry - An Overview and How the Brain Creates Mind	8 weeks	2	
	OR Psychology of Everyday	4 weeks	1	
	OR The Psychology of Language	8 weeks	2	
	OR Perspectives on Neurolinguistic	4 weeks	1	
	OR Language and Mind	8 weeks	2	
02	Consumer Psychology	8 weeks	2	

03	Health research fundamentals	8 weeks	2	
04	Disability Studies: An introduction	8 weeks	2	
05	The Science of Happiness and Wellbeing	8 weeks	2	
06	Yoga and Positive Psychology for Managing Career and Life	8 weeks	2	

COMPUTER SCIENCE

1. Minor degree in Artificial Intelligence - MOOC

https://online.vtu.ac.in/program-details/fc3edf28-bd3a-48a3-a06f-25a9b8d45cf5

Sl. No	Core Courses (Compulsory)	Duration	Credits	
01	Artificial Intelligence Search Methods For Problem Solving	12 weeks	3	All branches except Computer science and Allied Branches
	OR An Introduction to Artificial Intelligence	12 weeks	3	
02	Artificial Intelligence: Knowledge Representation and Reasoning	12 weeks	3	
03	Programming, Data Structures and Algorithms in Python	8 weeks	2	
	OR Python for Data Science	4 weeks	1	
04	Introduction to Machine Learning	12 weeks	3	
	Elective Courses	**Duration**	**Credits**	
01	Deep Learning	12 weeks	3	
	OR Deep Learning for Computer Vision	12 weeks	3	
02	Reinforcement Learning	12 weeks	3	
03	AI: Constraint Satisfaction	8 weeks	2	
04	Computer Vision	12 weeks	3	
05	Natural Language Processing	12 weeks	3	
	OR Applied Natural Language Processing	12 weeks	3	

06	Practical Machine Learning with Tensorflow	8 weeks	2	
07	Affective Computing	12 weeks	3	

2. Minor degree in Data Science-MOOC

https://online.vtu.ac.in/program-details/75af6ad8-0b8f-47d7-a0dc-bc9b4990fac9

Sl. No	Core Courses (Compulsory)	Duration	Credits	
01	Python for Data Science	4 weeks	1	All branches except Computer science and Allied Branches
	OR Programming, Data Structures and Algorithms in Python	8 weeks	2	
02	Introduction to Data Analytics	8 weeks	2	
	OR Data Science for Engineers	8 weeks	2	
	OR Data Analytics with Python	12 weeks	3	
03	Introduction to Machine Learning	12 weeks	3	
	Elective Courses	**Duration**	**Credits**	
01	Deep Learning	12 weeks	3	
	OR Deep Learning for Computer Vision	12 weeks	3	
02	Reinforcement Learning	12 weeks	3	
03	Artificial Intelligence : Search Methods For Problem solving	12 weeks	3	
	OR An Introduction to Artificial Intelligence	12 weeks	3	
04	Artificial Intelligence: Knowledge Representation and Reasoning	12 weeks	3	
05	Computer Vision	12 weeks	3	
06	Natural Language Processing	12 weeks	3	
	OR Applied Natural Language Processing	12 weeks	3	
07	Practical Machine Learning with Tensor flow	8 weeks	2	
08	Learning Analytics Tools	12 weeks	3	
09	Probability for Computer Science	8 weeks	2	

3. Minor degree in Programming-MOOC

https://online.vtu.ac.in/program-details/0c78c91d-725b-4a4b-abdc-c86b971a5fcd

Sl. No	Core Courses (Compulsory)	Duration	Credits	
01	Programming, Data Structures and Algorithms in Python	8 weeks	2	All branches except Computer science and Allied Branches
	OR Data Structure and Algorithms using Java	12 weeks	3	
02	Programming in Modern C++	12 weeks	3	
03	Programming in Java	12 weeks	3	
	OR Object Oriented System Development using UML, Java and Patterns	12 weeks	3	
04	Introduction to Database Systems	12 weeks	3	
	Elective Courses	**Duration**	**Credits**	
01	Data Science for Engineers	8 weeks	2	
02	Cloud computing	12 weeks	3	
03	Introduction to Internet of Things	12 weeks	3	
04	Introduction to Machine Learning	12 weeks	3	
05	Modern Application Development	12 weeks	3	

4. Foundation for Computing-MOOC

https://online.vtu.ac.in/program-details/925842f1-161a-462d-82f1-6b232ad171c6

Sl. No	Core Courses (Compulsory)	Duration	Credits	
01	Discrete Mathematics	12 weeks	3	All branches except Computer
02	Design and Analysis of Algorithms	8 weeks	2	
03	Programming, Data Structures and Algorithms in Python	8 weeks	2	
04	Theory of Computation	8 weeks	2	

	Elective Courses	Duration	Credits	science and Allied Branches
01	Randomized Algorithms	12 weeks	3	
02	Parallel Algorithms	12 weeks	3	
03	Modern Algebra	8 weeks	2	
04	Graph Theory	8 weeks	2	
05	Computational Geometry	12 weeks	3	
06	Arithmetic Circuit Complexity	12 weeks	3	
07	Foundations of Cryptography	12 weeks	3	
08	Computer Graphics	8 weeks	2	
09	Computational Complexity	12 weeks	3	
10	Secure Computation: Part I	12 weeks	3	
11	Parameterized Algorithms	12 weeks	3	
12	Probability for Computer Science	12 weeks	3	

5. Minor degree in Systems:MOOC

https://online.vtu.ac.in/program-details/ffb7992b-ec95-4da4-887b-c93163d936d0

Sl. No	Core Courses (Compulsory)	Duration	Credits	All branches except Computer science and Allied Branches
01	Compiler Design	12 weeks	3	
02	Introduction to Operating Systems	8 weeks	2	
	OR Operating System	12 weeks	3	
	OR Operating System Fundamentals	12 weeks	3	
03	Computer Networks and Internet Protocol	12 weeks	3	
04	Introduction to Database Systems	12 weeks	3	
	Elective Courses	**Duration**	**Credits**	
01	Cloud computing	12 weeks	3	
02	Information Security - 5 - Secure Systems Engineering	12 weeks	3	
03	Introduction to parallel programming with OpenMP and MPI	8 weeks	2	
04	Introduction to Internet of Things	8 weeks	2	

05	Multi-Core Computer Architecture – Storage And Interconnects	12 weeks	3	
06	Advanced Computer Architecture	12 weeks	3	
07	Ethical Hacking	12 weeks	3	
08	Introduction to Blockchain Technology and Applications	8 weeks	2	
	OR Blockchain Architecture Design and Use Cases	12 weeks	3	
09	GPU Architectures and Programming	12 weeks	3	
10	C-Based VLSI Design	12 weeks	3	
11	Real-Time Systems	12 weeks	3	
12	Introduction to Computer and Network Performance Analysis using Queuing Systems	4 weeks	1	
13	Foundation of Cloud IoT Edge ML	8 weeks	2	
14	Design and Engineering of Computer Systems	8 weeks	2	

ELECTRICAL ENGINEERING

1. Minor degree in VLSI Designs - MOOC

https://online.vtu.ac.in/program-details/2c99521f-0c00-4b40-837e-cf5d7396f038

Sl. No	Core Courses (Compulsory)	Duration	Credits	
01	Basic electrical circuits	12 weeks	3	All branches except Electrical Engineering and Allied Branches
	OR Network Analysis	12 weeks	3	
02	Analog circuits	12 weeks	3	
	OR Microelectronics: Devices to Circuits	12 weeks	3	
03	Digital Electronic Circuits	12 weeks	3	
	OR Digital Circuits	12 weeks	3	

04	Fundamentals of semiconductor devices	12 weeks	3	
	OR Introduction to Semiconductor Devices	12 weeks	3	
05	Microprocessors and Microcontrollers	12 weeks	3	
	Elective Courses	**Duration**	**Credits**	
01	Hardware modeling using verilog	8 weeks	2	
02	VLSI Physical Design	12 weeks	3	
03	Mapping Signal Processing Algorithms to Architectures	12 weeks	3	
04	Digital IC Design	12 weeks	3	
05	Power Management Integrated Circuits	12 weeks	3	
06	Microprocessors and Interfacing	12 weeks	3	
07	Introduction to Time - Varying Electrical Networks	12 weeks	3	
08	System Design Through VERILOG	8 weeks	2	
09	Circuit Analysis for Analog Designers	12 weeks	3	
10	Design and Analysis of VLSI Subsystems	12 weeks	3	
11	Physics of Nanoscale Devices	12 weeks	3	
12	Phase-locked loops	12 weeks	3	
13	VLSI Interconnects	8 weeks	2	
14	Semiconductor device modeling and Simulation	12 weeks	3	
15	VLSI Design Flow: RTL to GDS	12 weeks	3	

2. Minor degree in Communication and Signal Processing - MOOC

https://online.vtu.ac.in/program-details/44e926d2-a1a2-49f9-990e-2022cd89ee87

Sl. No	Core Courses (Compulsory)	Duration	Credits	
01	Principles of Signals and Systems	12 weeks	3	
	OR Signals and Systems	12 weeks	3	All branches except Electrical Engineering/EC
	Digital Signal Processing	12 weeks	3	

02	**OR** Discrete Time Signal Processing	8 weeks	2	
03	Probability Foundations for Electrical Engineers	8 weeks	2	
04	Principles of Communication Systems - I	12 weeks	3	
05	Principles of Communication Systems: Part - II	8 weeks	2	
	OR Principles of Digital Communications	12 weeks	3	
06	Applied Linear Algebra	12 weeks	3	
07	Communication Networks	12 weeks	3	
08	Signal Processing Techniques And Its Applications	12 weeks	3	
	Elective Courses	**Duration**	**Credits**	
01	An Introduction to Information Theory	8 weeks	2	
	OR An Introduction to Coding Theory	8 weeks	2	
	OR Information Theory	12 weeks	3	
02	Introduction to Wireless and Cellular Communications	12 weeks	3	
03	Digital Image Processing	12 weeks	3	
	OR Image Signal Processing	12 weeks	3	
04	Multirate DSP	12 weeks	3	
05	Principles and Techniques of Modern Radar Systems	12 weeks	3	
06	Statistical Signal Processing	12 weeks	3	
07	Stochastic Modeling and the Theory of Queues	12 weeks	3	
08	Signal Processing for mm Wave communication for 5G and beyond	12 weeks	3	
09	Concentration inequalities	8 weeks	2	
10	Stochastic control and communication	12 weeks	3	
11	Semiconductor device modeling and Simulation	12 weeks	3	
12	Modern Computer Vision	12 weeks	3	
13	डिजिटलस्विचिंग (Digital Switching)	8 weeks	2	
14	Simulation Of Communication Systems Using Matlab	12 weeks	3	
15	Introduction To Adaptive Signal Processing	8 weeks	2	
16	Machine Learning And Deep Learning -- Fundamentals And Applications	12 weeks	3	

3. Minor degree in Power Systems and Power Electronics - MOOC

https://online.vtu.ac.in/program-details/87e90a34-fef9-4385-b4da-934de00f6640

Sl. No	Core Courses (Compulsory)	Duration	Credits	
01	Basic electrical circuits	12 weeks	3	All branches except Electrical Engineering and Allied Branches
	OR Network Analysis	12 weeks	3	
02	Electrical machines - I	12 weeks	3	
	OR Electrical Machines - II	12 weeks	3	
03	Power System Engineering	12 weeks	3	
	OR Power system analysis	12 weeks	3	
04	Fundamentals of Power Electronics	12 weeks	3	
	OR Power Electronics	12 weeks	3	
	Elective Courses	**Duration**	**Credits**	
01	Control engineering	12 weeks	3	
02	Electrical Measurement and Electronic Instruments	12 weeks	3	
03	Computer Aided Power System Analysis	12 weeks	3	
04	Fundamentals of Electric Drives	8 weeks	2	
05	High Power Multilevel Converters- Analysis, Design and Operational Issues	12 weeks	3	
06	Power Management Integrated Circuits	12 weeks	3	
07	DC Power Transmission Systems	12 weeks	3	
08	Design of Power Electronic Converters	8 weeks	2	
09	Power System Protection and Switchgear	8 weeks	2	
10	Power System Protection	12 weeks	3	
11	Smart Grid: Basics to Advanced Technologies	12 weeks	3	
12	Power Quality	12 weeks	3	
13	Control and Tuning Methods in Switched Mode Power Converters	12 weeks	3	
14	Operation and Planning of Power Distribution Systems	12 weeks	3	
15	Digital Protection of Power System	8 weeks	2	
16	Digital Control in Switched Mode Power Converters and FPGA-based Prototyping	12 weeks	3	
17	Economic Operations And Control Of Power Systems	12 weeks	3	
18	Design Of Electric Motors	12 weeks	3	

19	Sustainable Power Generation Systems	12 weeks	3	

4. Minor degree in Control and Instrumentation - MOOC

https://online.vtu.ac.in/program-details/c4455323-74d6-4d1f-9e23-ac74ca9e55e9

Sl. No	Core Courses (Compulsory)	Duration	Credits	All branches except Electrical Engineering and Allied Branches
01	Principles of Signals and Systems	12 weeks	3	
	OR Signals and Systems	12 weeks	3	
	Basic electrical circuits	12 weeks	3	
02	**OR** Network Analysis	12 weeks	3	
03	Control engineering	12 weeks	3	
	OR Control systems	12 weeks	3	
04	Electrical Measurement and Electronic Instruments	12 weeks	3	
	Analog circuits	12 weeks	3	
	OR Analog Electronic Circuit	12 weeks	3	
05	**OR** Analog Circuits	8 weeks	2	
	OR Microelectronics: Devices to Circuits	12 weeks	3	
06	Microprocessors and Microcontrollers	12 weeks	3	
07	Applied Linear Algebra	12 weeks	3	
08	Transducers For Instrumentation	12 weeks	3	
	Elective Courses	**Duration**	**Credits**	
01	Linear System Theory	12 weeks	3	
	OR Linear Dynamical Systems	8weeks	2	
02	Control System Design	12 weeks	3	
03	Industrial Instrumentation	12 weeks	3	
04	Design for internet of things	8 weeks	2	
05	Advanced IOT Applications	8weeks	2	
06	Sensors and Actuators	12 weeks	3	
07	Statistical Signal Processing	12 weeks	3	
08	Nonlinear System Analysis	12 weeks	3	
09	Mathematical Aspects of Biomedical Electronic System Design	12 weeks	3	

10	Introduction to Biomedical Imaging Systems	12weeks	3	

5. Minor degree in Photonics - MOOC

https://online.vtu.ac.in/program-details/c695b1c0-74df-41c4-9d4f-6e653a06a5e9

Sl. No	Core Courses (Compulsory)	Duration	Credits	All branches except Electrical Engineering and Allied Branches
01	Introduction to Photonics	12 weeks	3	
02	Optical Engineering	12 weeks	3	
03	Applied Electromagnetic For Engineers	12 weeks	3	
	OR Transmission Lines and Electromagnetic Waves	12 weeks	3	
	Elective Courses	**Duration**	**Credits**	
01	Optical Sensors	4 weeks	1	
02	Optical communications	12 weeks	3	
03	Computational Electro magnetics	12 weeks	3	
04	Fiber Optics	8 weeks	2	
05	Microwave Engineering	12 weeks	3	
06	Photonic integrated circuit	12 weeks	3	
07	Biophotonics	12 weeks	3	
08	Fiber Optic Communication Technology	12 weeks	3	
09	Semiconductor Optoelectronics	12 weeks	3	
10	Ultrafast Optics and Spectroscopy	12 weeks	3	
11	Laser: Fundamentals and Applications	8 weeks	2	
12	Optical Spectroscopy and Microscopy : Fundamentals of optical measurements and instrumentation	12 weeks	3	
13	Optical Fiber Sensors	12 weeks	3	
14	Integrated Photonics Devices and Circuits	12 weeks	3	
15	Advanced Microwave Guided-Structures and Analysis	12 weeks	3	
16	Fundamentals Of Nano And Quantum Photonics	12 weeks	3	

17	RF and Microwave Networks	12 weeks	3	
18	Optical Wireless Communications for Beyond 5G Networks and IoT	12 weeks	3	
19	Nanobiophotonics: Touching Our Daily Life	12 weeks	3	
20	Nanophotonics, Plasmonics, And Metamaterials	12 weeks	3	

MANAGEMENT

1. Minor degree in Marketing - MOOC

https://online.vtu.ac.in/program-details/e8450a08-d716-4ec3-8d8a-0fea5ac6529c

Sl. No	Core Courses (Compulsory)	Duration	Credits	
01	Marketing Management-I	8 weeks	2	All branches except Management and Allied Branches
02	Marketing Management - II	8 weeks	2	
03	Consumer Behaviour	8 weeks	2	
04	Marketing research and analysis	8 weeks	2	
	Elective Courses	**Duration**	**Credits**	
01	Services Marketing: A Practical Approach	4 weeks	1	
02	Sales and Distribution Management	8 weeks	2	
03	Management of Field Sales	4weeks	1	
04	Global Marketing Management	12 weeks	3	
05	Marketing Research and Analysis - II	12 weeks	3	
06	Managing Services	8weeks	2	
07	Customer Relationship Management	8 weeks	2	
08	Retail Management	8 weeks	2	
09	Introduction To Marketing Essentials	12 weeks	3	
10	Integrated Marketing Communication	12 weeks	3	
11	International Marketing	8 weeks	2	

2. Minor degree in Operations- MOOC

https://online.vtu.ac.in/program-details/55600d2c-6783-4520-bd7b-e3662ad89953

Sl. No	Core Courses (Compulsory)	Duration	Credits	All branches except Management and Allied Branches
01	Introduction to probability and Statistics	4 weeks	1	
	OR Data Analysis and Decision Making - I	12 weeks	3	
02	Introduction to Operations Research	8 weeks	2	
03	Operations and Supply Chain Management	12 weeks	3	
04	Introduction to Data Analytics	8 weeks	2	
	OR Business Statistics	12 weeks	3	
Sl. No	**Elective Courses**	**Duration**	**Credits**	
01	Project management for managers	12 weeks	3	
02	Total Quality Management - I	8 weeks	2	
03	Total Quality Management - II	8 weeks	2	
04	Strategy: An Introduction to game Theory	8 weeks	2	
05	Six Sigma	12 weeks	3	
06	Quality Design and Control	12 weeks	3	
07	Supply Chain Analytics	8 weeks	2	
08	Management of Inventory Systems	12 weeks	3	
09	Decision modeling	8 weeks	2	
10	Decision-Making Under Uncertainty	4 weeks	1	
11	Design and Analysis of Experiments	12weeks	3	
12	Practitioners Course in Descriptive, Predictive and Prescriptive Analytics	8 weeks	2	
13	Business Analytics for Management Decision	12 weeks	3	
14	Selected Topics in Decision Modeling	8 weeks	2	
15	Data Analysis & Decision Making - II	12 weeks	3	

16	Data Analysis & Decision Making - III	12 weeks	3	
17	MCDM Techniques Using R	4 weeks	1	
18	Manufacturing Strategy	8 weeks	2	
19	Advanced Green Manufacturing Systems	12 weeks	3	
20	Toyota Production System	8 weeks	2	
21	The Future of Manufacturing Business: Role of Digital Technologies	8 weeks	2	
22	The Future of Manufacturing Business: Role of Digital Technologies	8 weeks	2	
23	Automation in Production Systems and Management	12 weeks	3	
24	Decision making with spreadsheet	12 weeks	3	

3. Minor Degree in Operations, Finance and Strategic Management - MOOC

https://online.vtu.ac.in/program-details/1bb13fb2-65d9-4647-a283-38a1419a1eae

Sl. No	Course (Compulsory)	Duration	Credits	
01	Introduction to Operations Research	8 weeks	2	All branches except Management and Allied Branches
02	Marketing Management-I	8 weeks	2	
03	Operations and Supply Chain Management	12 weeks	3	
04	Financial Accounting	8 weeks	2	
	OR Decision making using financial accounting	8 weeks	2	
	OR Financial accounting – IIT Mandi	12 weeks	3	
05	Principles of Management	12 weeks	3	
06	The Future of Manufacturing Business: Role of Digital Technologies	8 weeks	2	
	Elective Courses	**Duration**	**Credits**	

01	Business Analytics for Management Decision	12 weeks	3	
02	Automation in Production Systems and Management	12 weeks	3	
03	Management of Inventory Systems	12 weeks	3	
04	Integrated Marketing Communication	12 weeks	3	

4. Minor degree in Patents and Intellectual Property Rights - MOOC

https://online.vtu.ac.in/program-details/88abee15-e603-44e3-b850-3ec622bdb039

Sl. No	Core Courses (Compulsory)	Duration	Credits	
01	Patent Law for Engineers and Scientists	12 weeks	3	All branches except Management and Allied Branches
02	Patent Search for Engineers and Lawyers	8 weeks	2	
03	Patent Drafting for Beginners	4 weeks	1	
04	Roadmap for patent creation	8 weeks	2	
	Elective Courses	**Duration**	**Credits**	
01	Intellectual Property Rights and Competition Law	8 weeks	2	
02	Innovation, Business Models and Entrepreneurship	8 weeks	2	
03	Innovation by Design	4weeks	1	
04	Managing Intellectual Property in Universities	4weeks	1	
05	Integrated Marketing Communication	12 weeks	3	
06	Managing Services	8weeks	2	

5. Minor degree in Economics - MOOC

https://online.vtu.ac.in/program-details/284ee89f-f82a-458a-9ef3-cba449b017de

Sl. No	Core Courses (Compulsory)	Duration	Credits	
01	An Introduction to Microeconomics	12 weeks	3	All branches except Management

	OR Microeconomics: Theory & Applications	12 weeks	3	and Allied Branches
02	Engineering Econometrics	12 weeks	3	
	OR Introduction to Econometrics	12 weeks	3	
	OR Applied Econometrics	12 weeks	3	
	OR Econometric Modelling	8 weeks	2	
03	Economic Growth and Development	8 weeks	2	
	Elective Courses	**Duration**	**Credits**	
01	Infrastructure Economics	8 weeks	2	
02	Energy Economics and Policy	8 weeks	2	
	OR Energy Resources, Economics and Environment	12 weeks	3	
03	Introduction to Environmental Economics	12 weeks	3	
	OR Environmental & Resource Economics	12 weeks	3	
04	Economics of Health and Health Care	8 weeks	2	
05	Game theory	8 weeks	2	
	OR Strategy: An Introduction to game Theory	8 weeks	2	
06	Economics of IPR	4 weeks	1	
07	Mathematics for Economics - I	12 weeks	3	

6. Minor degree in Managerial Economics - MOOC

https://online.vtu.ac.in/program-details/c7b70381-5bd6-45f2-9045-bfbcb8df5ba3

Sl. No	Core Courses (Compulsory)	Duration	Credits	
01	Foundation Course in Managerial Economics	8 weeks	2	All branches except Management and Allied Branches
	OR Managerial Economics	12 weeks	3	
02	An Introduction to Microeconomics	12 weeks	3	
	OR Microeconomics: Theory & Applications	12 weeks	3	
	Elective Courses	**Duration**	**Credits**	
01	Engineering Econometrics	12 weeks	3	
	OR Introduction to Econometrics	12 weeks	3	

	OR Applied Statistics and Econometrics	12 weeks	3	
	OR Applied Econometrics	12 weeks	3	
	OR Econometric Modelling	8 weeks	2	
02	Game theory	8 weeks	2	
	OR Strategy: An Introduction to game Theory	8 weeks	2	
03	Business Statistics	12 weeks	3	
04	Decision making using financial accounting	8weeks	2	
05	Financial Institutions and Markets	12 weeks	3	
06	Introduction to Operations Research	8weeks	2	
07	Decision-Making Under Uncertainty	4 weeks	1	
08	Economics of IPR	4 weeks	1	
09	Automation in Production Systems and Management	12 weeks	3	
10	Business and Sustainable Development	4 weeks	1	
11	Computer Aided Decision Systems - Industrial practices using Big Analytics	12 weeks	3	
12	Organizational Design Change and Transformation	12 weeks	3	
13	Mergers, Acquisitions and Corporate Restructuring	8weeks	2	
14	Business Development: From Start to Scale	12 weeks	3	
15	Investment Management	8weeks	2	
16	Artificial Intelligence (AI) for Investments	12 weeks	3	

7. Minor Degree in Economics and Finance - MOOC

https://online.vtu.ac.in/program-details/732d664a-5267-4a32-a100-53b9409c105f

Sl. No	Core Courses (Compulsory)	Duration	Credits	

01	An Introduction to Microeconomics	12 weeks	3	All branches except Management and Allied Branches
	OR Microeconomics: Theory & Applications	12 weeks	3	
02	Financial Mathematics	12 weeks	3	
03	Behavioural and Personal Finance	8 weeks	2	
	Elective Courses	**Duration**	**Credits**	
01	Decision making using financial accounting	8 weeks	2	
02	Financial Institutions and Markets	12 weeks	3	
03	Probability and Stochastics for Finance	8 weeks	2	
	OR Introduction to Probability Theory and Stochastic Processes	12 weeks	3	
	OR Introduction to Stochastic Processes	12 weeks	3	
04	Corporate Finance	8 weeks	2	
05	Security Analysis & Portfolio Management	12 weeks	3	
06	Investment Management	8 weeks	2	

METALLURGICAL AND MATERIALS ENGINEERING

1. Minor degree in Materials Joining - MOOC

https://online.vtu.ac.in/program-details/d18322e9-07c0-4cab-82c5-b9e442688683

Sl. No	Core Courses (Compulsory)	Duration	Credits	
01	Weldability of Metals	8 weeks	2	All branches except Metallurgical and Allied Branches
	OR Welding Metallurgy	12 weeks	3	
02	Welding Processes	12 weeks	3	
	OR Joining Technologies for Metals	12 weeks	3	
	Elective Courses	**Duration**	**Credits**	
01	Advances in Welding and Joining Technologies	8 weeks	2	
02	Theory and Practice of Non-Destructive Testing	8 weeks	2	

03	Analysis and Modelling of Welding	8 weeks	2	
04	Welding of Advanced High Strength Steels for Automotive Applications	4weeks	1	
05	Thermo-Mechanical and Thermo-Chemical Processes	8 weeks	2	
06	Aqueous Corrosion and Its Control	12 weeks	3	
07	Cathodic Protection Engineering	4 weeks	1	
08	Finite element modelling of welding processes	12 weeks	3	
09	Corrosion Failures and Analysis	8 weeks	2	
10	Mechanical Behaviour of Materials (Part I)	12 weeks	3	

2. Minor Degree in Electronics Materials - MOOC

https://online.vtu.ac.in/program-details/4df5be8d-9734-4638-a6c3-48040efa48a6

Sl. No	Core Courses (Compulsory)	Duration	Credits	
01	Physics of Materials	12 weeks	3	All branches except Metallurgical and Allied Branches.
02	Fundamentals of electronic device fabrication	4 weeks	1	
03	Fundamentals of electronic materials and devices	8 weeks	2	
04	Fundamentals of semiconductor devices	12 weeks	3	
	Elective Courses	**Duration**	**Credits**	
01	Solar Photovoltaics: Principles, Technologies & Materials	8 weeks	2	
02	Material Characterization	12 weeks	3	
03	Solid State Physics	8 weeks	2	
04	Mechanical Behaviour of Materials (Part I)	12 weeks	3	

3. Minor Degree in Materials Characterization - MOOC

https://online.vtu.ac.in/program-details/99584e6a-f7ff-4b83-aafd-82d33d39e37f

Sl. No	Core Courses (Compulsory)	Duration	Credits	

01	X-ray Crystallography & Diffraction	12 weeks	3	All branches except Metallurgical and Allied Branches
02	Fundamentals of X-ray diffraction and Transmission electron microscopy	8 weeks	2	
03	Fundamentals of optical and scanning electron microscopy	8 weeks	2	
04	Techniques of Material Characterization	12 weeks	3	
	Elective Courses	**Duration**	**Credits**	
01	Elementary Stereology for Quantitative Metallography	4 weeks	1	
02	Theory and Practice of Non-Destructive Testing	8 weeks	2	
03	Analytical chemistry	12 weeks	3	
04	Texture in Materials	12 weeks	3	
05	Mechanical Behaviour of Materials (Part I)	12 weeks	3	

4. Minor Degree in Minor in Metallurgy - MOOC

https://online.vtu.ac.in/program-details/4cfcd963-ea16-4124-a547-9de322814064

Sl. No	**Core Courses (Compulsory)**	**Duration**	**Credits**	
01	Ironmaking and Steelmaking	12 weeks	3	All branches except Metallurgical and Allied Branches
02	Aqueous Corrosion and Its Control	12 weeks	3	
03	Mechanical Behaviour of Materials	12 weeks	3	
04	Material Characterization	12 weeks	3	
05	Introduction to Materials Science and Engineering	12 weeks	3	
06	Thermodynamics And Kinetics Of Materials	12 weeks	3	
Sl. No	**Elective Courses**	**Duration**	**Credits**	
01	Modelling of Tundish Steelmaking Process in Continuous Casting	8 weeks	2	
02	Introduction to Mineral Processing	12 weeks	3	

03	Corrosion/Environmental Degradation/Surface Engineering	12 weeks	3	
04	Welding Processes	12 weeks	3	
05	Powder Metallurgy	12 weeks	3	
06	Corrosion - Part II	8 weeks	2	
07	Thermo-Mechanical and Thermo-Chemical Processes	8 weeks	2	
08	Dealing with Materials Data: Collection, Analysis and Interpretation	12 weeks	3	
09	Properties of Materials (Nature and Properties of Materials: III)	8 weeks	2	
10	Diffusion in Multicomponent Solids	12 weeks	3	
11	Corrosion Failures and Analysis	8 weeks	2	
12	Mechanical Behavior of Materials (Part I)	12 weeks	3	

MECHANICAL ENGINEERING

1. Minor Degree in Computational Engineering - MOOC

https://online.vtu.ac.in/program-details/569a41ac-3042-455a-924f-b1d5ea111ce3

Sl. No	Core Courses (Compulsory)	Duration	Credits	
01	Engineering Mechanics	12 weeks	3	All branches except Mechanical Engineering and Allied Branches
02	Numerical Methods for Engineers	12 weeks	3	
03	Basics of Finite Element Analysis-I	8 weeks	2	
	OR Introduction to Finite Volume Methods I	8 weeks	2	

04	Finite Element Method: Variational Methods to Computer Programming	12 weeks	3	
	Elective Courses	**Duration**	**Credits**	
01	Foundations of Computational Materials Modelling	12 weeks	3	
02	A short lecture series on contour integration in the complex plane	4 weeks	1	
03	Fundamentals of Compressible Flow	12 weeks	3	
04	High Performance Computing for Scientists and Engineers	8 weeks	2	
05	Fundamentals of Convective Heat Transfer	12 weeks	3	
06	Computational Fluid Dynamics using Finite Volume Method	12 weeks	3	
07	Optimization from fundamentals	12 weeks	3	
08	Evolutionary Computation for Single and Multi-Objective Optimization	8 weeks	2	
09	Tools in Scientific Computing	8 weeks	2	

2. Minor degree in Computational Thermo Fluids - MOOC

https://online.vtu.ac.in/program-details/e4e2a4b1-28cd-4976-b9d9-fa26bce35c54

Sl. No	Core Courses (Compulsory)	Duration	Credits	
01	Introduction to Fluid Mechanics	12 weeks	3	All branches except Mechanical Engineering and Allied Branches
	OR Advanced Fluid Mechanics	12 weeks	3	
	OR Viscous Fluid Flow	12 weeks	3	

	OR Conduction And Convection: Fundamentals And Applications	12 weeks	3	
02	Numerical methods	8 weeks	2	
03	Computational Fluid Dynamics	12 weeks	3	
	OR Foundation of Computational Fluid Dynamics	8 weeks	2	
	OR Computational Fluid Dynamics for Incompressible Flows	12 weeks	3	
	OR Computational Fluid Dynamics using Finite Volume Method	12 weeks	3	
	OR Computational Fluid Dynamics and Heat Transfer	12 weeks	3	
	Elective Courses	**Duration**	**Credits**	
01	Turbulent Combustion: Theory and Modelling	12 weeks	3	
02	Fundamentals of Compressible Flow	12 weeks	3	
03	Fundamentals of Convective Heat Transfer	12 weeks	3	
04	Computational Continuum Mechanics	12 weeks	3	
05	Optimization from fundamentals	12 weeks	3	
06	Evolutionary Computation for Single and Multi-Objective Optimization	8 weeks	2	
07	Fundamentals of Combustion	12 weeks	3	
08	Interfacial Fluid Mechanics	12 weeks	3	

3. Minor Degree in Advanced Mechanics - MOOC

https://online.vtu.ac.in/program-details/835c3368-d831-4d61-9105-6c25d332fdc7

Sl. No	**Core Courses(Compulsory)**	**Duration**	**Credits**	
01	Engineering Mechanics	12 weeks	3	All branches except Mechanical Engineering and Allied Branches
02	Solid Mechanics	12 weeks	3	
03	Vibrations of structures	12 weeks	3	
	OR Introduction to Mechanical Vibration	8 weeks	2	
	OR Vibration and Structural Dynamics	8 weeks	2	
04	Basics of Finite Element Analysis-I	8 weeks	2	
	OR Basics of Finite Element Analysis - II	8 weeks	2	
	OR Finite Element Method: Variation Methods to Computer Programming	12 weeks	3	
05	Basics of Materials Engineering	12 weeks	3	
	Elective Courses	**Duration**	**Credits**	
01	Numerical Methods for Engineers	12 weeks	3	
02	Foundations of Computational Materials Modelling	12 weeks	3	
03	A short lecture series on contour integration in the complex plane	4 weeks	1	
04	Dynamic Behaviour of Materials	12 weeks	3	
05	Theory of Elasticity	12 weeks	3	
06	Computational Continuum Mechanics	12 weeks	3	
07	Theory of Composite Shells	8 weeks	2	
08	Finite element modelling of welding processes	12 weeks	3	
09	Advanced Dynamics	12 weeks	3	
10	Mechanics and Control of Robotic Manipulators	8 weeks	2	
11	Engineering fracture mechanics	12 weeks	3	
12	Experimental Stress Analysis	12 weeks	3	
13	Vibrations of Plates and Shells	12 weeks	3	
14	Dynamics and Control of Mechanical Systems	12 weeks	3	
15	Nonlinear Adaptive Control	12 weeks	3	

4. Minor degree in Propulsion - MOOC

https://online.vtu.ac.in/program-details/4c1d9e90-0d67-4cc3-bfd5-6bebf2fba3da

Sl. No	Core Courses (Compulsory)	Duration	Credits	
01	Thermodynamics	12 weeks	3	All branches except Mechanical Engineering and Allied Branches
02	Advanced Thermodynamics and Combustion	12 weeks	3	
03	Aircraft Propulsion	12 weeks	3	
04	Rocket Propulsion	12 weeks	3	
05	Applied Thermodynamics for Engineers	12 weeks	3	
06	Fluid Mechanics	12 weeks	3	

5. Minor degree in Energy Systems - MOOC

https://online.vtu.ac.in/program-details/5b27a6a2-9975-42cf-ad58-5634634bbbba

Sl. No	Core Courses (Compulsory)	Duration	Credits	
01	Thermodynamics	12 weeks	3	All branches except Mechanical Engineering and Allied Branches
02	Applied Thermodynamics for Engineers	12 weeks	3	
03	Fluid Dynamics and Turbo machines	8 weeks	2	
04	Heat Transfer	12 weeks	3	
	OR Conduction and Convection Heat Transfer	12 weeks	3	
	OR Transport Processes I: Heat and Mass Transfer	12 weeks	3	
	OR Fundamentals of Conduction and Radiation	12 weeks	3	
	OR Conduction And Convection: Fundamentals And Applications	12 weeks	3	

05	Power Plant Engineering	8 weeks	2	
Sl. No	**Elective Courses**	**Duration**	**Credits**	
01	Energy conservation and waste heat recovery	12 weeks	3	
02	Bioenergy	8 weeks	2	
	OR Waste to Energy Conversion	8 weeks	2	
03	Energy Economics and Policy	8 weeks	2	
04	Non-Conventional Energy Resources	12 weeks	3	
	OR Technologies for clean and renewable energy production	8 weeks	2	
05	Aircraft Propulsion	12 weeks	3	
06	Selection of Nanomaterials for Energy Harvesting and Storage Application	4 weeks	1	
07	Steam Power Engineering	8 weeks	2	
08	Elements of Solar Energy Conversion	12 weeks	3	
09	Fundamentals of Convective Heat Transfer	12 weeks	3	
10	Advanced Thermodynamics and Combustion	12 weeks	3	

6. Minor degree in Manufacturing Processes and Technology - MOOC

https://online.vtu.ac.in/program-details/5ca45d0c-9331-4b5f-8eb7-27cd2104e170

Sl. No	Core Courses (Compulsory)	Duration	Credits	
01	Manufacturing Process Technology I & II	12 weeks	3	All branches except Mechanical Engineering and Allied Branches
	OR Theory of Production Processes	12 weeks	3	
	OR Production Technology: Theory and Practice	12 weeks	3	
02	Manufacturing System Technology Part 1 & 2	12 weeks	3	
03	Mechanics of Machining	8 weeks	2	
04	Industrial Automation and Control	12 weeks	3	

	OR Automation in Manufacturing	12 weeks	3	
	Elective Courses	**Duration**	**Credits**	
01	Introduction to Mechanical Micro Machining	12 weeks	3	
02	Metal Cutting and Machine Tools	4 weeks	1	
03	Machinery Fault Diagnosis and Signal Processing	12 weeks	3	
04	Non-Traditional Abrasive Machining Processes- Ultrasonic, Abrasive Jet and Abrasive Water Jet Machining	4 weeks	1	
05	Sustainability through Green Manufacturing Systems: An Applied Approach	8 weeks	2	
06	Rapid Manufacturing	12 weeks	3	
07	Theory and Practice of Non-Destructive Testing	8 weeks	2	
08	Operations Management	12 weeks	3	
09	Mathematical Modelling Of Manufacturing Processes	12 weeks	3	
10	Design for Quality, Manufacturing and Assembly	8 weeks	2	
11	Principles of Industrial Engineering	12 weeks	3	
12	Computer Integrated Manufacturing	12 weeks	3	
13	Machining Science	4 weeks	1	
14	Plastic Working of Metallic Materials	12 weeks	3	
15	Engineering Drawing and Computer Graphics	12 weeks	3	
16	Mechatronics	8 weeks	2	
17	Finite element modelling of welding processes	12 weeks	3	
18	Manufacturing Processes - Casting and Joining	4 weeks	1	
19	Wheeled Mobile Robots	8 weeks	2	
20	Oil Hydraulics and Pneumatics	12 weeks	3	
21	Robotics: Basics and Selected Advanced Concepts	12 weeks	3	
	OR Introduction to Robotics	12 weeks	3	

22	Welding Application Technology	8 weeks	2	
23	Fundamentals of Additive Manufacturing Technologies	12 weeks	3	
24	Design of Mechatronic Systems	12 weeks	3	
25	Laser Based Manufacturing	8 weeks	2	
26	Metal Additive Manufacturing	12 weeks	3	

7. Minor degree in Product Design - MOOC

https://online.vtu.ac.in/program-details/44587034-4c72-4d0a-97e4-c262ca782004

Sl. No	Core Courses (Compulsory)	Duration	Credits	All branches except Mechanical Engineering and Allied Branches
01	Manufacturing Guidelines for Product Design	8 weeks	2	
02	Product Design and Development	4 weeks	1	
03	Product Design and Manufacturing	12 weeks	3	
04	Design Practice	8 weeks	2	
05	Basics of Materials Engineering	12 weeks	3	
06	Production Technology: Theory and Practice	12 weeks	3	
	Elective Courses	**Duration**	**Credits**	
01	Design Practice - II	8 weeks	2	
02	Ergonomics in Automotive Design	4 weeks	1	
	OR Ergonomics Workplace Analysis	4 weeks	1	
03	System Design for Sustainability	12 weeks	3	
04	Digital Human Modelling and Simulation for Virtual Ergonomics Evaluation	8 weeks	2	
05	Gear and Gear Unit Design: Theory and Practice	8 weeks	2	
06	Design for Quality, Manufacturing and Assembly	8 weeks	2	
08	Robotics and Control: Theory and Practice	8 weeks	2	
	OR Robotics: Basics and Selected Advanced Concepts	12 weeks	3	

	OR Introduction to Robotics	12 weeks	3	
09	Turbulent Combustion: Theory and Modelling	12 weeks	3	
10	Engineering Drawing and Computer Graphics	12 weeks	3	
11	Mechatronics	8 weeks	2	
12	Manufacturing Processes - Casting and Joining	4 weeks	1	
13	Wheeled Mobile Robots	8 weeks	2	
14	Welding Application Technology	8 weeks	2	
15	Fundamentals of Additive Manufacturing Technologies	12 weeks	3	
16	Design of Mechatronic Systems	12 weeks	3	

8. Minor degree in Advanced Dynamics and Vibration - MOOC

https://online.vtu.ac.in/program-details/6df0521d-e771-4fab-abb1-8653bc6fad88

Sl. No	**Core Courses (Compulsory)**	**Duration**	**Credits**	All branches except Mechanical Engineering and Allied Branches
01	Engineering Mechanics	12 weeks	3	
02	Vibrations of structures	12 weeks	3	
	OR Introduction to Mechanical Vibration	8 weeks	2	
03	Advanced Dynamics	12 weeks	3	
04	Nonlinear Vibration	12 weeks	3	
	Elective Courses	**Duration**	**Credits**	
01	Robotics and Control: Theory and Practice	8 weeks	2	
02	Fundamentals of Acoustics	12 weeks	3	
	OR Acoustic and Noise Control	12 weeks	3	
03	Acoustic Materials and Metamaterials	8 weeks	2	
04	A short lecture series on contour integration in the complex plane	4 weeks	1	
05	Computational Continuum Mechanics	12 weeks	3	

06	Muffler Acoustics-Application to Automotive Exhaust Noise Control	12 weeks	3	
07	Mechanics and Control of Robotic Manipulators	8 weeks	2	
08	Vibrations of Plates and Shells	12 weeks	3	
09	Dynamics and Control of Mechanical Systems	12 weeks	3	
10	Nonlinear Adaptive Control	12 weeks	3	

9. Minor degree in Computational Mechanics - MOOC

https://online.vtu.ac.in/program-details/645b5258-ee9f-4650-897d-78178e7bd4e9

Sl. No	Core Courses (Compulsory)	Duration	Credits	
01	Engineering Mechanics	12 weeks	3	All branches except Mechanical Engineering and Allied Branches
02	Numerical Methods for Engineers	12 weeks	3	
03	Basics of Finite Element Analysis-I	8 weeks	2	
	OR Finite Element Method	12 weeks	3	
	OR Introduction to Finite Volume Methods I	8 weeks	2	
04	Finite Element Method: Variational Methods to Computer Programming	12 weeks	3	
	Elective Courses	**Duration**	**Credits**	
01	Foundations of Computational Materials Modelling	12 weeks	3	
02	A short lecture series on contour integration in the complex plane	4 weeks	1	
03	Optimization from fundamentals	12 weeks	3	
04	Computational Continuum Mechanics	12 weeks	3	
05	Finite element modeling of welding processes	12 weeks	3	

06	Evolutionary Computation for Single and Multi-Objective Optimization	8 weeks	2	
07	Tools in Scientific Computing	8 weeks	2	
08	Advanced Dynamics	12 weeks	3	
09	Dynamics and Control of Mechanical Systems	12 weeks	3	
10	Nonlinear Adaptive Control	12 weeks	3	

10. Robotics				
Sl. No	**Core Courses (Compulsory)**	**Duration**	**Credits**	
01	Introduction to robotics	12 weeks	3	All branches except Mechanical Engineering and Allied Branches
	OR Mechanism and Robot Kinematics	8 weeks	2	
	OR Robotics and Control: Theory and Practice	8 weeks	2	
	OR Mechanics and Control of Robotic Manipulators	8 weeks	2	
02	Wheeled Mobile Robots	8 weeks	2	
	Elective Courses	**Duration**	**Credits**	
01	Sensors and Actuators	12 weeks	3	
02	Microprocessors and Microcontrollers	12 weeks	3	
03	Digital Image Processing	12 weeks	3	
04	Fundamentals of Power Electronics	12 weeks	3	
	OR Power Electronics	12 weeks	3	
05	Embedded Systems Design	12 weeks	3	
	OR Ethical Hacking	12 weeks	3	
06	Industrial Automation and Control	12 weeks	3	
07	Kinematics of Mechanisms and Machines	8 weeks	2	
	OR Mechanics of Human Movement	12 weeks	3	
08	Modelling and Simulation of Dynamic Systems	8 weeks	2	
09	Design of Mechatronic Systems	12 weeks	3	

10	Fundamentals of Artificial Intelligence	12 weeks	3	
	OR An Introduction to Artificial Intelligence	12 weeks	3	
	OR Introduction to Machine Learning	12 weeks	3	
	OR Practical Machine Learning with TensorFlow	8 weeks	2	
	OR Machine Learning, ML	8 weeks	2	
11	Reinforcement Learning	12 weeks	3	
12	Deep Learning	12 weeks	3	
13	Robot Motion Planning	8 weeks	2	

Courses Offered by Various Companies (Paid Courses)

Edutainer India

1. MINOR DEGREE IN ARTIFICIAL INTELLIGENCE

https://online.vtu.ac.in/program-details/94101b20-0dde-44bf-9212-b3e3c749ec16

Sl. No	Courses	Credits	
01	Artificial Intelligence	3	All, Except Computer science & allied Branches(AI, DS,IS,ML,)
02	How to use ChatGPT	3	
03	Chat GPT for professionals	3	
04	AI enhanced growth Marketing	3	
05	AI driven content mastery for marketers	3	
06	Midjourney	3	

2. MINOR DEGREE IN BUSINESS MANAGEMENT

https://online.vtu.ac.in/program-details/d02d3af6-14c4-462d-aeb7-e4f8d6135684

Sl. No	Courses	Credits	
01	Mini MBA in Business	3	All, Except Management
02	Organizational Psychology	3	
03	Sales & Business Development	3	
04	Leadership & Management	3	
05	HR Employee Management	3	
06	Critical thinking, decision making & problem solving	3	

3. MINOR DEGREE IN COMPUTER SCIENCE & TECHNOLOGY

https://online.vtu.ac.in/program-details/29f0bae6-b29a-4ee8-b930-27d8f1db04f1

Sl. No	Courses	Credits	
01	Master Computer Science Fundamentals	3	All,Except Computer science&allied Branches (AI,DS,IS,ML)
02	Cyber Security, Ethical Hacking and Risk Assessment	3	
03	Python Programming	3	
04	Full Stack Web Development Bootcamp	3	
05	React JS	3	
06	Project Management	3	

4. MINOR DEGREE IN DIGITAL MARKETING

https://online.vtu.ac.in/program-details/4680b1e7-1a8c-4c73-ba9f-e59db4ac6587			
Sl. No	**Courses**	**Credits**	
01	Introduction to Digital Marketing	3	All branches
02	Social media marketing	3	
03	SEO & Digital Marketing	3	
04	Blogging, Content marketing and Vlogging	3	
05	AI enhanced growth marketing	3	
06	AI driven content mastery for marketers	3	