UNIVERSITY OF MUMBAI
No. UG/244 of 2017-18

CIRCULAR:-

Attention of the Principals of affiliated Colleges in Engineering, (B.E) degree course is invited to this office Circular No.UG/06 of 2013-14, dated 10th April, 2013 relating to the details of Equivalence/alternate subjects of the B.E. degree course. They are informed that the recommendations made by the Faculty of Technology at its meeting held on 19th April, 2017 have been accepted by the Academic Council at its meeting held on 11th May, 2017 vide item no.4.259 and in accordance therewith, the Equivalence/alternate subjects of the B.E. Level Revised Scheme of 2007-08 to 2012-13 (i.e. from December 2017 Exam.) and the same has been brought into force with effect from the academic year 2017-18. (The same is available on the University's web site (www.mu.ac.in).

MUMBAI – 400 032
17th October, 2017

(Dr. Dinesh Kamble)
I/c REGISTRAR

To,

The Principals of affiliated Colleges in Engineering.

A.C/ 4.259/11/05/2017.

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No. UG/244-A of 2017   MUMBAI-400 032   17th October, 2017

Copy forwarded with compliments for information to:-

1. The Co-Ordinator, Faculty of Science &Technology,
2. The Chairmen/Chairpersons of various Board of the Studies in Engineering and Technology.
3. The Offg.Director, Board of Examinations and Evaluation,
4. The Director, Board of Students Development.,
5. The Co-Ordinator, University Computerization Centre,

(Dr. Dinesh Kamble)
I/c REGISTRAR

B.E.(Electronics Engineering) Equivalent/Alternate Course Subjects

Course Code	Old Course	Equivalent/Alternate course in CBGS	Course Code
B.E.(Electronics Engineering)R-2007		**B.E.(Electronics Engineering) CBGS R-2012**	
	SEM III		
	Engineering Mathematics	Applied Mathematics-III	**EXS301**
	Basics of Electronics Circuits	Electronic Devices	**EXC302**
	Digital System Design	Digital Circuits and Design	**EXC303**
	Electrical Network Analysis and Synthesis	Circuit Theory	**EXC304**
	Control System	Principles of Control Systems	**EXC404**
	Presentation and communication Techniques	Business Communication and Ethics	**EXS506**
	SEM IV		
	Advanced Engineering Mathematics	Applied Mathematics-IV	**EXS401**
	Electronics Circuit Analysis and Design	Discrete Electronic Circuits	**EXC402**
	Digital System Design II	ASIC Verification	**EXC7053**
	Basics of Analog and Digital Communication System	Fundamentals of Communication Engineering	**EXC405**
	Electronic and Electrical Measuring Instruments and Machine	Electrical Machines	**EXC406**
	Electronic Workshop-I	Mini Project I	**EXL405**
	SEM V		
	Continuous Time Signal and System	Signals and System	**EXC504**
	Microprocessors and Microcontrollers-I	Microcontrollers and Applications	**EXC501**
	Electromagnetic Engineering	Electromagnetic Engineering	**EXC503**

	Linear Integrated Circuits and Design	Designing with Integrated Circuits	**EXC502**
	Digital Communication and Coding Techniques	Digital Communication	**EXC505**
	EVS	Environmental Sciences	**FEC106**
	Electronic Workshop-II	Mini Project-II	**EXL605**
	SEM VI		
	Discrete Time Signals and Systems	Digital Signal Processing and Processors	**EXC605**
	Microprocessors and Microcontrollers-II	Embedded System Design	**EXC701**
	Microwave Devices and Circuits	Optical Fiber Communication	**EXC7054**
	Electronic Instrumentation System	Advanced Instrumentation Systems	**EXC602**
	Power Electronics	Power Electronics-I	**EXC604**
	Elective I		
	Communication Systems and Applications	Digital Communication	**EXC505**
	Medical Electronics	Biomedical Electronics	**EXC8044**
	Computer Organization	Computer Organization	**EXC603**
	SEM VII		
	VLSI design	Basic VLSI Design	**EXC601**
	Filter Design		
	Power Electronics and Drives	Power Electronics-II	**EXC703**
	Communication Networks	Computer Communication Networks	**EXC704**
	Elective-II		
	Wireless Communication	Advanced Networking Technologies	**EXC802**
	Advances in Biomedical Instrumentation	Advanced Instrumentation Systems	**EXC602**
	Microcomputer System Design	Embedded System Design	**EXC701**

	Digital Image Processing and Design	Digital Image Processing	**EXC7051**
	SEM VIII		
	Advanced VLSI Design	CMOS VLSI Design	**EXC801**
	Robotics and Automation	Robotics	**EXC8041**
	Embedded Systems and Real Time Programming	Embedded System Design	**EXC701**
	Elective III		
	Advanced Networking Technologies	Advanced Instrumentation Systems	**EXC602**
	DSP Processors and Architectures	Digital Signal Processing and Processors	**EXC605**
	Neural Networks and Fuzzy Systems	• Artificial Intelligence	**EXC7052**
	Electronics Product Design	• ASIC Verification	**EXC7053**

• **Alternative Course**

Electronics and telecommunication engineering (EXTC)
Equivalent subjects of R-2007 to Rev-2012
(Effective from A .Y. 2017-18(i.e. Nov – 2017)]

SEM	SR. NO	SUBJECTS OF R-2007		EQUIVALENT SUBJEXT OF REV-2012	EQUIVALENT SEM.
SEM –III	01	Applied Mathematics - III		Applied Mathematics -III	SEM - 3
	02	Digital Logic Design		Digital Electronics	SEM - 3
	03	Electronic Devices And Circuits		Analog Electronics – I	SEM - 3
	04	Electrical Networks		Circuits And Transmission Line	SEM - 3
	05	Electronic Instrumentation		Electronic Instrument & Measurement	SEM - 3
	06	Presentation And Communication Technology		Business Communication And Ethic	SEM - 5
SEM –IV	01	Applied Mathematics – IV		Applied Mathematics -IV	SEM - 4
	02	Analog And Digital IC Design & Applications		Integrated Circuits	SEM- 5
	03	Principle Of Communication Engg.		Analog Communication	SEM- 5
	04	Electronics Devices And Circuits - II		Analog Electronics – II	SEM -4
	05	Electromagnetic Wave Theory		Wave Theory And Propagation	SEM -4
	06	Simulation Software Workshop		Simulation Software Lab	SEM- 4 (PRACTICAL)
SEM –V	01	Random Signal Analysis		Random Signal Analysis	SEM –5
	02	Microprocessors And Microcontroller		Microprocessors And Peripherals	SEM –4
	03	RF Circuit Design		RF Modeling & Antennas	SEM –5
	04	Signals And Systems		Signals And Systems	SEM –4
	05	Principle Of Control Systems		Control Systems	SEM –4
	06	Electronics Hardware Workshop		Mini Project-1	SEM –5
	07	Environmental Studies (50 Marks)			
SEM-VI	01	Microprocessors And Microcontroller- II		Microcontroller And Applications	SEM –5
	02	Antenna And Wave Progation		RF Modeling And Antennas	SEM-5
	03	Industrial Economic And Telecom Regulating		Telecom Network & Management	ELECTIVE (SEM- 8)
	04	Digital Communication		Digital Communication	SEM-6
	05	TV And Video Engineering		Television Engineering	SEM-6
	06	Elective	1) Acoustics	Speech Processing	SEM-8

			Engineering	(Alternate Subject)	ELECTIVE
		Elective	2)Micro Electronics	Analog & Mixed Signal – VLSI	SEM – 7 ELECTIVE
		Elective	3)Radar Engineering	Microwave & Radar Engineering	SEM -7
		Elective	4)Digital Telephony	Digital Communication	SEM – 6
		Elective	5)Neural Networks And Fuzzy Logic	Neutral Network And Fuzzy Logic	ELECTIVE SEM – 7
SEM – VII	01	Mobile communication		Mobile communication	SEM – 7
	02	Fundamentals of microwave engineering		Microwave and radar engineering	SEM – 7
	03	Computer communication network		Computer Communication and Telecom Networks	SEM – 6
	04	Discrete time signal processing		Discrete Time Signal Processing	SEM – 6
	05	Elective	Data Compressing And Encryption	Data Compressing And Encryption	SEM – 7 (ELECTIVE)
		Elective	Introduction to VLSI	Analogue &Mixed Signal - VLSI	SEM – 7 (ELECTIVE)
		Elective	Speech Processing	Speech Processing	SEM –8 (ELECTIVE)
		Elective	Electronic Product Design	Telecom Network & Management (Alternate subject)	SEM –8 (ELECTIVE)
SEM – VIII					
	1.	Advance Microwave Engg.		Microwave Integrated Circuit	SEM –8 (ELECTIVE)
	2	Optical Fiber Communication		Optical Communication & Networking	SEM –7
	3	Wireless Network		Wireless Network	SEM –8
	4	Elective			
		1) Image Processing		Image And Video Processing	SEM-7
		2) Satellite Communication		Satellite Communication & Networks	SEM –8
		3) Telecom Network Management		Telecom Network & Management	SEM –8 (ELECTIVE)
		4) Microwave Integrated Circuit		Microwave Integrated Circuit	SEM –8 (ELECTIVE)

University of Mumbai
Equivalence of subjects for B. E. Chemical Engineering From 2007 to 2012

Sr. No.	2007		2012	
	Subject Code	Subject Name	Subject Code	Subject Name
		Sem I		
1	1.1	Applied Mathematics I	FEC101	Applied Mathematics I (Sem I)
2	1.2	Applied Physics I	FEC102	Applied Physics I (Sem I)
3	1.3	Applied Chemistry I	FEC103	Applied Chemistry I (Sem I)
4	1.4	Engineering Mechanics	FEC104	Engineering Mechanics (Sem I)
5	1.5	Basic electrical and Electronic engineering	FEC105	Basic electrical and Electronic Engineering
6	1.6	Computer Programming I	FEC205	Structured Programming approach (Sem II)
7	1.7	Basic Workshop & practices I	FEC107	Basic Workshop practices I (Sem I)
		Sem II		
8	2.1	Applied Mathematics II	FEC201	Applied Mathematics II (Sem II)
9	2.2	Applied Physics II	FEC202	Applied Physics II (Sem II)
10	2.3	Applied Chemistry II	FEC203	Applied Chemistry II (Sem II)
11	2.4	Communication skill	FEC206	Communication skill (Sem II)
12	2.5	Engineering Drawing	FEC204	Engineering Drawing (Sem II)
13	2.6	Computer Programming II	FEC205	Structured Programming approach (Sem II)
14	2.7	Basic Workshop & practices II	FEC207	Basic Workshop practices II (Sem II)
		Sem III		
15	3.1	Applied Mathematics – III	CHC301	Applied Mathematics – III (Sem III)
16	3.2	Advanced Chemistry- I	CHC302	Engineering Chemistry- I (Sem III)
17	3.3	Electronics & Electrical Engineering	EXC406	Electrical Machines (Electronics Engg Sem IV)
18	3.4	Computer Application	CHC304	Computer Programming and Numerical Methods (Sem III)
19	3.5	Process Calculation	CHC305	Process Calculation (Sem III)
20	3.6	Presentation & Communication Techniques	CHC506	Business Communication & Ethics (Sem V)
		Sem IV		
21	4.1	Applied Mathematics – IV	CHC401	Applied Mathematics – IV (Sem IV)
22	4.2	Advanced Chemistry-II	CHC402	Engineering Chemistry-II (Sem IV)
23	4.3	Fluid Flow	CHC303	Fluid Flow (Sem III)
24	4.4	Strength of Material & Fabrication Technology	CHC405	Mechanical Equipment Design (Sem IV)
25	4.5	Material Science Technology	CHC404	Material and Science and Engineering (Sem IV)
26	4.6	Plant Utility	CHC605	Plant Engineering (Sem VI)
		Sem V		
27	5.1	Heat Transfer Operation	CHC503	Heat Transfer Operation-I (Sem V)
28	5.2	Chemical Engineering Thermodynamics-I	CHC403	Chemical Engineering Thermodynamics-I
29	5.3	Process Equipment Design & Drawing-I	CHC405	Mechanical Equipment Design (Sem IV)
30	5.4	Solid Fluid Mechanical Operation	CHC406	Solid Fluid Mechanical Operation (Sem IV)
31	5.5	Mass Transfer Operation-I	CHC502	Mass Transfer Operation-I (Sem V)
32	5.6	Chemical Engineering Economics	CHC306	Chemical Engineering Economics (Sem III)
		Sem VI		
33	6.1	Chemical Process-I	CHC505	Chemical Technology (Sem V)

34	6.2	Chemical Engineering Thermodynamics-II	CHC501	Chemical Engineering Thermodynamics-II (Sem V)
35	6.3	Mass Transfer Operation-II	CHC602	Mass Transfer Operation-II (Sem VI)
36	6.4	Process Equipment Design & Drawing-II	CHC701	Process Equipment Design (Sem VII)
37	6.5	Transport Phenomena	CHC805	Elective III: Advanced Transport Phenomenon (Sem VIII)
38	6.6.1	Elective I- Piping Engineering		Student can opt any elective from the elective I group and has not opted earlier.
39	6.6.2	Elective I- Numerical Methods in Chemical Engineering	CHC304	Computer Programming and Numerical Methods
40	6.6.3	Elective I-Optimization & Operation Research	CHE606	Elective I- Operation Research (Sem VI)
41	6.6.4	Elective I-Computer Aided Design	CHE606	Elective I- Computational Fluid Dynamics (Sem VI)
		Sem VII		
42	7.1	Chemical Process-II	CHC505	Chemical Technology (Sem V)
43	7.2	Reaction Kinetics	CHC504	Chemical Reaction Engineering-I (Sem V)
44	7.3	Instrumentation & Process Control	CHC703	Process Dynamics and Control (Sem VII)
45	7.4	Process Engineering	CHC702	Process Engineering (Sem VII)
46	7.5	Elective II-Bio Technology	CHC805	Elective III: Biotechnology (Sem VIII)
47	7.5	Elective II-Polymer Engineering	CHE704	Elective II: Polymer Technology (Sem VII)
48	7.5.1	Elective II-Food Process Engineering		Student can opt any elective from the elective II other than that they have opted earlier
49	7.5.2	Elective II- Petrochemical & Refining Technology	CHE704	Elective II: Petroleum Refining Technology
50	7.5.3	Elective II-Nuclear Engineering		Student can opt any elective from the elective II other than that they have opted earlier.
51	7.5.4	Elective II-Project Engineering & Entrepreneurship Management	CHC802	Project Engineering & Entrepreneurship Management (Sem VIII)
52	7.6	Project- A	CHP705	Project –A (Sem VII)
		Sem VIII		
53	8.1	Environmental Engineering	CHC803	Environmental Engineering (Sem VIII)
54	8.2	Chemical Reaction Engineering	CHC604	Chemical Reaction Engineering-II (Sem VI)
55	8.3	Modeling & Simulation in Chemical Engineering	CHC801	Modeling, Simulation & Optimization (Sem VIII)
56	8.4.1	Elective III-Industrial Safety	CHC605	Plant Engineering (Sem VI)
57	8.4.2	Elective III-Energy System Design	CHC804	Energy System Design (Sem VIII)
58	8.4.3	Elective III-Membrane Process Design	CHC805	Elective III: Advanced Separation Technology (Sem VIII)
59	8.4.4	Elective III-Pharmaceutical Technology		Student can opt any elective from the elective III other than that they have opted earlier
60	8.4.5	Elective III- Nanotechnology	CHC805	Elective III: Nanotechnology (Sem VIII)
61	8.5	Seminar	CHS706	Seminar (Sem VII)
62	8.6	Project B	CHP806	Project B (Sem VIII)

University of Mumbai

Equivalence of subjects B. E. Biotechnology Engineering For 2007 to 2012

Sr. No	2007		2012	
	Subject Code	Subject Name	Subject Code	Subject Name
		Sem I		
1	1.1	Applied Mathematics I	FEC101	Applied Mathematics I
2	1.2	Applied Physics I	FEC102	Applied Physics I
3	1.3	Applied Chemistry I	FEC103	Applied Chemistry I
4	1.4	Engineering Mechanics	FEC104	Engineering Mechanics
5	1.5	Basic electrical and Electronic engineering	FEC105	Basic electrical and Electronic engineering
6	1.6	Computer Programming I	FEC205	Structured Programming approach
7	1.7	Basic Workshop & practices I	FEC107	Basic Workshop practices I
		Sem II		
7	2.1	Applied Mathematics II	FEC201	Applied Mathematics II
8	2.2	Applied Physics II	FEC202	Applied Physics II
9	2.3	Applied Chemistry II	FEC203	Applied Chemistry II
10	2.4	Communication skill	FEC206	Communication skill
11	2.5	Engineering Drawing	FEC204	Engineering Drawing
12	2.6	Computer Programming II	FEC205	Structured Programming approach
13	2.7	Basic Workshop & practices II	FEC207	Basic Workshop practices II
		Sem III		
14	3.1	Applied Mathematics - III	BTC301	Applied Mathematics - III
15	3.2	Applied Bio Chemistry	BTC304	Biochemistry
16	3.3	Applied Microbiology	BTC302	Microbiology
17	3.4	Process Calculation	BTC306	Process Calculations
18	3.5	Fluid Flow & Solid handling	BTC305	Unit Operations-I
19	3.6	Information Technology and data management	MEL306	Data Base and Information Retrieval System (Mechanical E engineering Program Sem III)
		Sem IV		
20	4.1	Applied Mathematics - IV	BTC401	Applied Mathematics - IV
21	4.2	Mass Transfer Operation	BTC406	Unit Operations-II
	4.3	Analytical Methods in Biotechnology	BTC404	Analytical Methods in Biotechnology
22	4.4	Molecular Genetics	BTC402	Molecular Genetics
23	4.5	Biomaterial & Components	SEBE305	Biomaterial (from Biomedical Engineering program semester III)
24	4.6	Numerical Analysis and Modeling and simulation	BTC702	Bioprocess Modeling & Simulation
		Sem V		
25	5.1	Process Control & Instrumentation	BTC605	Process Control & Instrumentation
26	5.2	Bioinformatics –I	BTC501	Bioinformatics

27	5.3	Thermodynamics & Biochemical Engineering	BTC504	Thermodynamics & Biochemical Engineering
28	5.4	Fermentation Technology & Bio conservation	BTC403	Fermentation Technology
29	5.5	Heat Transfer Operation	BTC406	Unit Operations-II
30	5.6	Industrial organization management	CHC802	Project Engineering & Entrepreneurship Management (Chemical Engineering Sem VIII)
	Sem VI			
31	6.1	Enzyme Engineering	BTC603	Enzyme Engineering
	6.2	Bioinformatics-II	BTC601	Bioinformatics-II
32	6.3	Immunology and Immunotechnology	BTC405	Immunology and Immunotechnology
33	6.4	Plant cell and tissue culture	BTC602	Plant Cell & Tissue Culture
34	6.5	Bioreactor Analysis & technology	BTC505	Bioreactor Analysis & technology
35	6.6	Genetic Engineering & Technology	BTC502	Genetic Engineering
	Sem VII			
36	7.1	IPR Bioethics and Bio safety	BTC604	IPR, Bioethics & Bio safety
37	7.2	Environmental Biotechnology- I	BTC801	Environmental Biotechnology
38	7.3	Bioseparation & Downstream Processing Technology	BTC701	Bioseparation & Downstream Processing Technology-I
39	7.4	Process Dynamics and control	BTC605	Process Control & Instrumentation
40	7.5.1	Elective I-Bio Medical Engineering	BEBM703	Biomechanics Prosthesis and Orthosis (Biomedical Engineering Semester VII)
41	7.5.2	Elective I- Non Conventional Sources of Energy	BTC804	Elective III: Non Conventional Sources of Energy
42	7.5.3	Elective I-Protein Engineering	BTE804	Elective III: Protein Engineering
43	7.6	Project- A	BTP705	Project -A
	Sem VIII			
44	8.1	Transport Phenomenon in biotechnology	BTC305	Unit Operations-I
45	8.2	Environmental Biotechnology II	BTC801	Environmental Biotechnology
46	8.3	Project Engineering	BTE606	Elective I- Research Methodology and Scientific writing
47	8.4	Process plant operation & Safety	BTE606	Elective I- Good Laboratory Practices (GLP) & Process Safety
48	8.5.1	Elective II- Food Biotechnology	BTE704	Elective II: Food Biotechnology
49	8.5.2	Elective II-Metabolic Engineering	BTC304	Biochemistry
50	8.5.3	Elective II- Agriculture Biotechnology	BTC804	Elective III: Agriculture Biotechnology
51	8.6	Project B	BTP805	Project B

PRINTING & PACKAGING TECHNOLOGY

EQUIVALENCY OF R.2007 to R.2012 (CBGS)

Sem - III

R. 2007 Subjects	Equivalent to R. 2012 (CBGS) subject
Applied Mathematics - III	Applied Mathematics - III (Sem - III)
Packaging Introduction & Concepts	Principles of Packaging Technology (Sem - III)
Primary Packaging Materials - I	Paperbased Packaging Materials (Sem - III)
Material Science & Strength of Materials	Material Science & Technology (Sem - III)
Principles of Control Systems	--

Sem - IV

R. 2007 Subjects	Equivalent to R. 2012 (CBGS) subject
Applied Mathematics - IV	Applied Mathematics - III (Sem - III)
Primary Packaging Materials - II	Plastics in Packaging (Sem - IV)
Ancillary Packaging Materials	Ancillary Packaging Materials (Sem - V)
Introduction to Printing Technology	Introduction to Printing Technology (Sem - III)
Theory of Machines	Theory of Machine & Design (Sem - V)
Advanced Control Systems	--

Sem - V

R. 2007 Subjects	Equivalent to R. 2012 (CBGS) subject
Plastic Processing & Conversion Technologies	Plastic Processing & Conversion Technologies (Sem - V)
Prepress, Platemaking & Type-setting	--
Colour Management	Digital Imaging & Colour Management (Sem - IV)
Machine Design	Theory of Machine & Design (Sem - V)
Digital Electronics & Microprocessors	Digital Electronics & Microprocessors (Sem - IV)

PRINTING & PACKAGING TECHNOLOGY

EQUIVALENCY OF R.2007 to R.2012 (CBGS)

Sem - VI

R. 2007 Subjects	Equivalent to R. 2012 (CBGS) subject
Product Packaging - I	Food & Pharmaceutical Packaging (Sem - VI)
Printing Technologies - I	Flexographic Printing (Sem - VI)
Statistical Systems & Quality Assessment	Total Quality Management & Economics (Sem - VII)
Introduction to CAD/CAM Technologies	--
Electronics Instrumentation in Printing & Packaging	Instrumentation & Process Control (Sem - V)
Industrial Visits	Industrial Visits (Sem - VI)

Sem - VII

R. 2007 Subjects	Equivalent to R. 2012 (CBGS) subject
Product Packaging - II	Industrial Products Packaging (Sem - VI)
Printing Technologies - II	Elective - I: 3. Digital & Security Printing (Sem - VI)
Environmental Science & Waste Management	Sustainable Packaging (Sem - VII)
Packaging & Printing Machineries & Systems	Packaging Machineries & Systems (Sem - VI)
Elective - I: 1. Food Packaging Science & Technology - I	Food & Pharmaceutical Packaging (Sem - VI)
Elective - I: 1. Industrial Products Packaging - I	Industrial Products Packaging (Sem - VI)
Elective - I: 1. Self Adhesive & Narrow Web Technologies - I	Flexographic Printing (Sem - VI)

Sem - VIII

R. 2007 Subjects	Equivalent to R. 2012 (CBGS) subject
Product Preservation & Speciality Packaging	Elective - II: 1. Advanced Food Packaging (Sem - VII)
Packaging & Printing Management	Project Management & Entrepreneurship (Sem - VII)
Packaging Distribution & Logistics	Packaging Distribution & Logistics (Sem - VII)
Elective - II: 1. Food Packaging Science & Technology - II	Elective - II: 1. Advanced Food Packaging (Sem - VII)
Elective - II: 1. Industrial Products Packaging - II	Elective - II: 2. Advanced Industrial Products Packaging (Sem - VII)
Elective - II: 1. Self Adhesive & Narrow Web Technologies - II	Elective - II: 3. Labelling Technology (Sem - VII)

Equivalent subject
Department of Electrical Engineering

SEM III

SCHEME- 2007 Old	Abbreviation	SCHEME R-2012 CBGS	Abbreviation	SEM
Engineering Mathematics III*	EM III	Applied Mathematics III	AM III	III
Power Plant Engineering	PPE	Conventional & Non Conventional Power Generation	CNPG	III
Basic Electronics	BE	Electronic Devices & Circuits	EDC	III
Electrical Network	EN	Electrical Network	EN	III
Electrical Measurements & Measuring Instruments	EMMI	Electrical & Electronic Measurements	EEM	III
Numerical Techniques	NT	Numerical Methods & Optimisation Techniques	NMOT	IV
Presentation & Communication Techniques	PCT	Business Communication & Ethics	BCE	V

SEM IV

SCHEME- 2007 Old	Abbreviation	SCHEME R-2012 CBGS	Abbreviation	SEM
Engineering Mathematics IV	EM IV	Applied Mathematics IV	AM IV	IV
Elements of Power System	EPS	Elements of Power System	EPS	IV
Electrical Machines – I	EM-I	Electrical Machines – I	E Mc I	IV
Electronics Circuit Design	ECD	Electronic Devices & Circuits	EDC	III
Analog and Digital Integrated Circuits	ADIC	Analog and Digital Integrated Circuits	ADIC	IV
Electrical Instrument and Instrumentation	EII	Electrical & Electronic Measurements	EEM	III

SEMV

SCHEME- 2007 Old	Abbreviation	SCHEME R-2012 CBGS	Abbreviation	SEM
Electromagnetic Fields and Waves	EMFW	Electromagnetic Fields and Waves	EMFW	V
Electrical M/C-II	E Mc II	Electrical M/C-II	E Mc II	V
Communication Engineering	CE	Communication Engineering	CE	V
Power System Analysis	PSA	Power System Analysis	PSA	VI
Power Electronics	PE	Power Electronics	PE	V
Environment Studies	ES	Environment Studies	ES	I

SEMVI

SCHEME- 2007 Old	Abbreviation	SCHEME R-2012 CBGS	Abbreviation	SEM
Control System-I	CS-I	Control System I	CS-I	VI
Protection and Switchgear Engineering	PSE	Protection and Switchgear Engineering	PSE	V

Signal Processing	SP	Signal Processing	SP	IV
Electrical M/C-III	E Mc III	Electrical M/C-III	E Mc III	VI
Microprocessor and Microcontrollers	MPMC	Microcontroller and its application	MCA	VI
Project Management	PM	Project Management	PM	*VI*

SEMVII

SCHEME- 2007 Old	Abbreviation	SCHEME R-2012 CBGS	Abbreviation	SEM
Electrical Machine Design	EMD	Electrical Machine Design	EMD	VII
Power System Operation & Control	PSOC	Power System Operation & Control	PSOC	VII
High Voltage DC Transmission	HVDCT	High Voltage DC Transmission	HVDCT	VII
Control System II	CS II	Control System II	CS II	VII
High Voltage Engineering	HVE	High Voltage Engineering	HVE	VII
Analysis & Design of Switched Mode Converters		Analysis & Design of power Switching Converters		VII
Power Systems Dynamics & Stability	PSDS	Power Systems Dynamics & Control	PSDS	VIII
Illumination Engineering	IE	Advanced Lighting Systems	ALS	VII

SEMVIII

SCHEME- 2007 Old	Abbreviation	SCHEME R-2012 CBGS	Abbreviation	SEM
Design Management & Auditing of Electrical System	DMAES	Design Management & Auditing of Electrical System	DMAES	VIII
Drives & Control	DC	Drives & Control	DC	VIII
Power System planning & Reliability	PSPR	Power System Planning & Reliability	PSPR	VIII
Power Quality	PQ	Power Quality	PQ	VIII
Electric Traction	ET	Utilization of Electrical Energy	UEE	VI
Flexible Ac Transmission Systems	FACTS	Flexible Ac Transmission Systems	FACTS	VIII
Digital Signal Processors Applications in Power Systems		Digital Signal Controllers & its applications		VIII

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University of Mumbai

Instrumentation Engineering (Equivalence)

S.E Instrumentation Engineering (Equivalence)

SEMESTER- III

		(R-2007)		As per Semester Based Credit and Grading System (REV- 2012)
1		Transducers-I	ISC305	Transducers-I
2		Analog Electronics	ISC303	Analog Electronics
3		Engineering Mathematics-III	ISC301	Applied Mathematics-III
4		Electrical Network	ISC302	Electrical Network Analysis and Synthesis
5		Digital Electronics	ISC304	Digital Electronics
6		Presentation & Communication Techniques	ISC306	Object oriented programming and methodology

SEMESTER- IV

		(R-2007)		As per Semester Based Credit and Grading System (REV- 2012)
1		Transducers-II	ISC405	Transducers-II
2		Feedback Control System	ISC402	Feedback Control System
3		Electrical Technology & Instruments	ISC403	Electrical Technology and Instruments
4		Analytical Instrumentation	ISC606	Analytical Instrumentation (6th Sem)
5		Engineering Mathematics-IV	ISC401	Applied Mathematics-IV
6		Application Software Practices-I	ISC406	Application Software Practice
			ISC404	Communication System

T.E Instrumentation Engineering (Equivalence)

SEMESTER- V

		(R-2007)	As per Semester Based Credit and Grading System (REV- 2012)	
1		Signals & Systems	ISC501	Signals and Systems
2		Microprocessors and Applications	ISC502	Applications of Microcontroller -I
3			ISC503	Control System Design
4		Signal Conditioning Circuit Design	ISC504	Signal Conditioning Circuit Design
5		Control System Components	ISC505	Control system components
6		Environment Studies	ISC506	Business Communication and Ethics

SEMESTER- VI

		(R-2007)	As per Semester Based Credit and Grading System (REV- 2012)	
1		Process Instrumentation Systems	ISC601	Process Instrumentation System
2		Power Electronics & Drives	ISC602	Power Electronics and Deices
3		Digital Signal Processing	ISC603	Digital Signal Processing
4		Embedded Systems for Instrumentation	ISC604	Applications of Microcontroller-II
5		Industrial Data Communications	ISC605	Industrial Data Communication
6			ISC606	Analytical Instrumentation
		Control System Design	ISC503	Control System Design (Vth Sem)

B.E Instrumentation Engineering (Equivalence)

SEMESTER- VII

		(R-2007)		As per Semester Based Credit and Grading System (REV- 2012)	
1		Industrial Process Control	ISC701	Industrial Process Control	
2		Biomedical Instrumentation	ISC702	Biomedical Instrumentation	
3		Advanced Control Systems	ISC703	Advanced Control Systems	
4		Process Automation	ISC704	Process Automation	
5		Elective-I	ISE705X	Elective-I	
6		Advanced Embedded Systems		Advanced Embedded System	
		Fiber Optic Instrumentation		Wireless communication	
		Process Modeling and Optimization		Process Modeling and Optimization	
		Image Processing		Image Processing	
		Expert Systems		Functional Safety	

SEMESTER- VIII

		(R-2007)		As per Semester Based Credit and Grading System (REV- 2012)	
1		Batch Process Automation	ISC801	Digital Control System	
2		Instrumentation Project Documentation and Execution	ISC802	Instrumentation Project Documentation and Execution	
3		Instrument and System Design	ISC803	Instrument and System Design	
4		Elective II	ISE804X	Elective II	
		Power Plant Instrumentation		Power Plant Instrumentation	
		Digital Control System			
		Optimal & Robust Control Systems		Optimal Control theory	
		Nuclear Instrumentation		Nuclear Instrumentation	

B.E. Bio Medical Engineering

| R2007 | | Equivalent / alternate in R2012 | |

Sem	Subject Name
III	Electronic Circuit Analysis and Design-I
III	Electrical Network Analysis & Synthesis
III	*Engineering Mathematics-III
III	Human Anatomy and Physiology
III	Biomaterials
III	*Presentation & Communication Techniques

Sem	Subject Name
III	Electronic Circuits and Design-I
III	Electrical Network Analysis & Synthesis
III	Applied Maths-III
III	Human Anatomy and Physiology
III	Biomaterials
V	Business Communication and Ethics(no theory)

Sem	Subject Name
IV	Electronic Circuit Analysis and Design-II
IV	Transducers in Biomedical Instrumentation
IV	Electronic Instruments
IV	*Engineering Mathematics-IV
IV	Biomechanics, Prosthetic & Orthotics
IV	Logic Circuits

Sem	Subject Name
IV	Electronic Circuits and Design-II
IV	Transducers and Sensors for Medical Applications
IV	Electronic Instruments and Control Systems
IV	Applied Maths-IV
VII	Biomechanics, Prosthesis & Orthosis
IV	Logic Circuits

Sem	Subject Name
V	Microprocessors
V	Principles of Analog and Digital Communication
V	Biomedical Instrumentation – I
V	Design of Analog Circuits
V	Signals and Systems
V	Environmental Studies

Sem	Subject Name
V	Microprocessors
V	Principles of Communication Engineering
V	Biomedical Instrumentation – I
V	Analog and Digital Circuits Design
IV	Signals and Systems
I	Environmental Studies

Sem	Subject Name
VI	Microcontrollers and Embedded Systems
VI	Medical Imaging-I
VI	Biomedical Instrumentation – II
VI	Biological Modeling and simulations
VI	Biostatistics
VI	Digital Signal Processing for Biomedical Applications

Sem	Subject Name
VI	Microcontrollers and Embedded Systems
VI	Medical Imaging-I
VI	Biomedical Instrumentation – II
VI	Biological Modeling and simulations
VI	Biostatistics
V	Biomedical Digital Signal Processing

Sem	Subject Name
VII	Medical Imaging-II
VII	Biomedical Instrumentation-III
VII	Principles of Image Processing
VII	Networking and Information System in Medicine
VII	Installation, Maintenance and Servicing (NoTheory)
VII	Project Stage-I (No Theory)

Sem	Subject Name
VII	Medical Imaging-II
VII	Biomedical Instrumentation-III
VI	Digital Image Processing
VII	Networking and Information System in Medicine
	No Theory
	Project Stage - I (No Theory)

Sem	Subject Name
VIII	Nuclear Medicine
VIII	Basics of VLSI
VIII	Biomedical Microsystems
	Elective
VIII	1. Hospital Management
VIII	2. Digital Imaging and Communication in Medicine
VIII	3. Robotics in Medicine
VIII	Project Stage-II (No Theory)

Sem	Subject Name
VIII	Nuclear Medicine
VII	Very Large Scale Integrated Circuits
VIII	Biomedical Microsystems
VIII	Hospital Management(Core subject, not elective)
VIII	Healthcare Informatics
VIII	Robotics in Medicine (Elective)
	Project Stage-II (No Theory)

Equivalent / alternate subjects for Rev. 2007 to Rev. 2012. of B.E. (Computer Engineering)

	Rev. 2007	Equivalent / alternate in Rev. 2012
Sem. III	Applied Mathematics III	Applied Mathematics III
	Electronic Devices & Linear Circuits	Electronic Circuits and Communication Fundamentals
	Discrete Structure & Graph Theory	Discrete Structures
	Digital Logic Design & Application	Digital Logic Design and Analysis
	Data Structure and Files	Data Structures
	Computer Organization & Architecture	Computer Organization & Architecture
Sem. IV	Applied Mathematics IV	Applied Mathematics IV
	Analog & Digital Communication	Computer Network
	Database Management System	Data Base Management systems
	Computer Graphics	Computer Graphics
	Analysis of Algorithm & Design	Analysis of Algorithms
	Operating System	Operating System
Sem. V	Computer Network	Computer Network
	Advance database Management System	Distributed Database
	Microprocessor	Microprocessor
	Theory of Computer Science	Theory of Computer Science
	Web Engineering	
	Environment Studies	Environment Studies
Sem. VI	Advance Computer Network	Adhoc. Wireless Networks
	System Programming And Complier Construction	System Programming And Complier Construction
	Object Oriented Software Engineering	Software Engineering
	Advance Microprocessor	Microprocessor
	Data Warehouse And Data Mining	Data Warehouse And Mining
Sem. VII	Digital Signal & Image Processing	Digital Signal Processing
	Intelligent System	Artificial Intelligence
	Mobile Computing	Adhoc. Wireless Networks
	Elective- I 1) Computer Simulation & Modeling 2) E-commerce 3) Project Management 4) Soft Computing	1) Computer Simulation and Modeling 2) ERP and Supply Chain Management 3) Software Architecture 4) Soft Computing
Sem. VIII	Distributed Computing	Parallel and distributed Systems
	Multimedia System Design	Digital Forensic
	Software Architecture	Software Architecture
	Elective-II 1) Human Computing Interaction 2) Advanced Internet Technology 3) Computer Vision 4) Embedded System	1) Human Computing Interaction 2) Digital Forensic 3) Image Processing 4) Embedded System

Details of equivalent / alternative subjects between FE R-2007-08, R-2012-13 scheme for Institutions' and examinations

	R-2007-08 Subject	R-2012-13 Subject
	FE Sem-I	**FE Sem-I**
1	Applied Mathematics-I	Applied Mathematics-I
2	Applied Physics-I	Applied Physics-I
3	Applied Chemistry-I	Applied Chemistry-I
4	Engineering Mechanics	Engineering Mechanics
5	Basic Electrical & Electronics Engineering	Basic Electrical & Electronics Engineering
6	Computer Programming-I	Structured Programming Approach
	FE Sem-II	**FE Sem-II**
1	Applied Mathematics-II	Applied Mathematics-II
2	Applied Physics-II	Applied Physics-II
3	Applied Chemistry-II	Applied Chemistry-II
4	Engineering Drawing	Engineering Drawing
5	Communication Skills	Communication Skills
6	Computer Programming-II	Structured Programming Approach

Equivalent subject in Information Technology

Sr. No.	Equivalent Subject Sem –III (R-2007)	Equivalent Subject (R-2012)
1	Applied Mathematics-III	Applied Mathematics-III
2	Data Structures and Algorithms	Data Structure and Algorithm Analysis (**SEM-III R-2012**)
3	Electronic Devices & Circuits	Analog and Digital Circuits (**SEM-III R-2012**)
4	Digital Logic Design & Application	
5	GUI & Database Management	Database Management Systems (**SEM-III R-2012**)
6	Communication & Presentation Techniques	Business Communication and Ethics (**SEM-V R-2012**)

Sr. No.	Equivalent Subject Sem –IV (R-2007)	Equivalent Subject (R-2012)
1	Computational Mathematics	Applied Mathematics-IV
2	Principles of Communication	Principles of Analog and Digital Communication (**SEM-IV R-2012**)
3	Microprocessors & Microcontrollers	Microcontroller and Embedded Systems (**SEM-V R-2012**)
4	Internet Programming	Web Programming (**SEM-IV R-2012**)
5	Networking technology for Digital devices	Computer Networks (**SEM-IV R-2012**)
6	Financial accounting & Management of technology Innovation	Production planning and control B.E Mechanical Sem VII

Sr. No.	Equivalent Subject Sem –V (R-2007)	Equivalent Subject (R-2012)
1	Operating System for Computational Devices	Operating Systems (**SEM-V R-2012**)
2	Computer Graphics and Virtual Reality Systems	Computer Graphics and Virtual Reality (**SEM-V R-2012**)
3	Convergence of Technologies and Networking in Communication	Wireless Technology (**SEM-VII R-2012**)

4	Manufacturing processes, Planning and Systems	Production planning and control B.E Mechanical Sem VII
5	Object Oriented Analysis and Design	Software Engineering (**SEM-VI R-2012**)
6	Environmental Studies	Business Communication and Ethics (**SEM-V R-2012**) common for Communication & Presentation Techniques (2007)
7	Open Source Software Laboratory	Open Source Technologies (**SEM-V R-2012**)

Sr. No.	Equivalent Subject Sem –VI (R-2007)	Equivalent Subject (R-2012)
1	Information and Network Security	System and Web Security (**SEM-VI R-2012**)
2	Middleware and Enterprise Integration Technologies	Object Oriented Programming Methodology (**SEM-III R-2012**)
3	Software Engineering	Software Engineering (**SEM-VI R-2012**)
4	Data Base Technologies	Advanced Database Management Systems (**SEM-V R-2012**)
5	Programming for Mobile and Remote Computers	Object Oriented Programming Methodology (**SEM-III R-2012**) Common for Middleware and Enterprise Integration Technologies (2007)
6	Information Technology for Management of Enterprise	E-Commerce & E-Business (**Elective- I SEM-VII R-2012**)

Sr. No.	Equivalent Subject Sem –VII (R-2007)	Equivalent Subject (R-2012)
2	Data Warehousing, Mining & Business Intelligence	Data Mining and Business Intelligence (**SEM-VI R-2012**)
3	Digital Signal & Image Processing	Image Processing (**Elective- I SEM-VII R-2012**)
4	Simulation and Modeling	Computer Simulation and Modeling (**SEM-VIII R-2012**)
6	Software testing & Quality	Software Testing & Quality Assurance

	Assurance	(**Elective- II SEM-VIII R-2012**)
7	Elective – I Wireless Network	Wireless Technology (**SEM-VII R-2012**)
	Multimedia Systems	Multimedia Systems (**Elective- I SEM-VII R-2012**)
	Evolutionary Algorithms	Data Structure and Algorithm Analysis (**SEM-III R-2012**)
	IT in Construction	CAD /CAM B Mech Sem VII Mec702
	Nanotechnology	Nanotechnology BE MEch Sem VIII
	Geographical Information Systems	Geographical Information Systems (**Elective- II SEM-VIII R-2012**)
	Artificial Intelligence	Intelligent System (**SEM-VIII R-2012**)

Sr. No.	Equivalent Subject Sem –VIII (R-2007)	Equivalent Subject (R-2012)
1	Information Storage Management and Disaster Recovery	Storage Network Management and Retrieval (**SEM-VIII R-2012**)
2	Gaming Architecture and Programming	Artificial Intelligence BE comp Sem VII
3	Software Project Management	Software Project Management (**SEM-VII R-2012**)
4	Elective – II Cloud Computing	Cloud Computing (**SEM-VII R-2012**)
	IT for Health Care	Healthcare informatics sem VIII Elective Biomedical
	Service Oriented Architecture	Advance Internet Technology

	E-Government	(**SEM-VI R-2012**) E-Commerce & E-Business (**Elective- I SEM-VII R-2012**)
	ERP & CRM	Enterprise Resource Planning (**Elective- II SEM-VIII R-2012**)
	Mobile & Ecommerce	E-Commerce & E-Business (**Elective- I SEM-VII R-2012**)
	Robotics and Machine Intelligence	Robotics (**Elective- I SEM-VII R-2012**)

PRODUCTION ENGINEERING (Sem. III) - Equivalent subjects

	Subjects from Revised Course (R-2007)	Equivalent Subjects from Revised Course (R-2012)
1.	Applied Mathematics	Applied Mathematics - III
2.	Strength of Materials	Strength of Materials
3.	Manufacturing Engineering	Manufacturing Engineering I
4.	Engineering Graphics and Machine Drawing	Computer Aided Machine Drawing
5.	Theory of Machines	Theory of Machines (Sem IV)
6.	Presentation and Communication Techniques	Business Communication and Ethics (Sem V)
7.	Workshop Practice III	Workshop Practice III

PRODUCTION ENGINEERING (Sem. IV)

	Subjects from Revised Course (R-2007)	Equivalent Subjects from Revised Course (R-2012)
1	Applied Probability and Statistics	Applied Mathematics – IV
2	Fluid Mechanics and Fluid Power	Fluid Mechanics and Fluid Power (Sem III)
3	Manufacturing Engineering II	Manufacturing Engineering II
4	Electrical and Electronics Engineering	Electrical and Electronics Engineering
5	Thermal Engineering	Thermal Engineering (Sem V)
6	Engineering Design	Engineering Design (Sem V)
7	Workshop Practice IV	Workshop Practice IV

PRODUCTION ENGINEERING (Sem. V)

Sr.No.	Subjects from Revised Course (R-2007)	Equivalent Subjects from Revised Course (R-2012)
1	Computer Aided Design and Finite Element Analysis	Computer Aided Design and Finite Element Analysis
2	Metrology and Instrumentation	Metrology and Instrumentation
3	Design of Jigs and Fixtures	Design of Jigs and Fixtures
4	Machining Science and Technology	Machining Science and Technology
5	Material Technology	Material Technology (Sem IV)
6	Environmental Studies	Environmental Studies (sem I)

PRODUCTION ENGINEERING (Sem. VI)

Sr. No.	Subjects from Revised Course (R-2007)	Equivalent Subjects from Revised Course (R-2012)
1	Process Engineering and Tooling	Process Engineering and Tooling
2	Design of Press Tool and Metal Joining	Design of Press Tool and Metal Joining
3	Operation Research	Operation Research
4	Mould and Metal Forming Technology	Mould and Metal Forming Technology
5	Production and Operation Management	Production and Operation Management
6	Machine Tool Design	Machine Tool Design

PRODUCTION ENGINEERING (Sem. VII)

Sr. No.	Subjects from Revised Course (R-2007)	Equivalent Subjects from Revised Course (R-2012)
1	Industrial Training and Project	Industrial Training and Project

PRODUCTION ENGINEERING (Sem. VIII)

Sr. No.	Subjects from Revised Course (R-2007)	Equivalent Subjects from Revised Course (R-2012)
1	Automation and Control Engineering	Automation and Control Engineering
2	Computer Aided Manufacturing	Computer Aided Manufacturing
3	Engineering Economics, Finance, Accounting and Costing	Engineering Economics, Finance, Accounting and Costing
4	Tool Quality Strategy	Tool Quality Strategy
5	Industrial Relations and Human Resource Management	Industrial Relations and Human Resource Management
6	Elective	Elective

AUTOMOBILE ENGINEERING (Sem. III) - Equivalent subjects

	Subjects from Revised Course (R-2007)	Equivalent Subjects from Revised Course (R-2012)
1.	Applied Mathematics- III	Applied Mathematics - III
2.	Strength of Materials	Strength of Materials
3.	Machine Drawing	Machine Drawing
4.	Production Process - I	Production Process - I
5.	Thermodynamics	Thermodynamics
6.	Presentation and Communication Techniques	Business Communication and Ethics (Sem V)
7.	Machine shop Practice – I	Machine shop Practice-I

AUTOMOBILE ENGINEERING (Sem. IV)

	Subjects from Revised Course (R-2007)	Equivalent Subjects from Revised Course (R-2012)
1	Applied Mathematics – IV	Applied Mathematics – IV
2	Theory of Machine – I	Theory of Machine – I
3	Thermal Engineering	Thermal and Fluid Power Engineering
4	Production Process-II	Production Process-II
5	Material Technology	Material Technology
6	Industrial Electronics	Industrial Electronics
7	Machine Shop Practice –II	Machine Shop Practice –II

AUTOMOBILE ENGINEERING (Sem. V)

Sr.No.	Subjects from Revised Course (R-2007)	Equivalent Subjects from Revised Course (R-2012)
1	Mechanical Measurement and Metrology	Metrology and Quality Engineering
2	Theory of Machine –II	Theory of Machine -II
3	Fluid Mechanics	Fluid Mechanics (Sem IV)
4	Heat and mass Transfer	Heat Transfer
5	Vehicle Systems	Automotive System (Sem VI)
6	Environmental Studies	Environmental Studies (sem I)

AUTOMOBILE ENGINEERING (Sem. VI)

Sr. No.	Subjects from Revised Course (R-2007)	Equivalent Subjects from Revised Course (R-2012)
1	Mechatronics	Mechatronics (Mechanical Sem VI)
2	Automotive Emission Technology	Exempted
3	Mechanical Vibrations	Mechanical Vibration
4	Chassis and Body Engineering	Chassis and Body Engineering (Sem VII)
5	Internal Combustion Engine	Internal Combustion Engine (Sem V)
6	Machine Design I	Machine Design I

AUTOMOBILE ENGINEERING (Sem. VII)

Sr.No.	Subjects from Revised Course (R-2007)	Equivalent Subjects from Revised Course (R-2012)
1	Advanced Design of Machine Element	Automotive Design
2	CAD/CAM/CIM	CAD/CAM/CIM
3	Autotronics	Autotronics (Sem VIII)
4	Electives -I	Electives -I: (Student can select any elective from the group)

AUTOMOBILE ENGINEERING (Sem. VIII)

Sr.No.	Subjects from Revised Course (R-2007)	Equivalent Subjects from Revised Course (R-2012)
1	Vehicle Design	Product Design and Development (Sem VII)
2	Finite Element Analysis	Finite Element Analysis (Sem VI)
3	Vehicle Maintenance	Vehicle Maintenance
4	Vehicle Dynamics	Vehicle Dynamics
5	Electives –II	Elective -II: (Student can select any elective from the group)

MECHANICAL ENGINEERING (Sem. III) - Equivalent subjects

	Subjects from Revised Course (R-2007)	Equivalent Subjects from Revised Course (R-20012)
1.	Applied Mathematics- III	Applied Mathematics - III
2.	Strength of Materials	Strength of Materials
3.	Machine Drawing	Machine Drawing
4.	Production Process - I	Production Process - I
5.	Thermodynamics	Thermodynamics
6.	Presentation and Communication Techniques	Business Communication and Ethics (Sem V)
7.	Machine shop Practice - I	Machine shop Practice-I

MECHANICAL ENGINEERING (Sem. IV)

	Subjects from Revised Course (R-2001)	Equivalent Subjects from Revised Course (R-2007)
1	Applied Mathematics – IV	Applied Mathematics – IV
2	Theory of Machine – I	Theory of Machine – I
3	Thermal Engineering	Thermal and Fluid Power Engineering
4	Production Process-II	Production Process-II
5	Material Technology	Material Technology
6	Industrial Electronics	Industrial Electronics
7	Machine Shop Practice –II	Machine Shop Practice –II

MECHANICAL ENGINEERING (Sem. V)

Sr.No.	Subjects from Revised Course (R-2007)	Equivalent Subjects from Revised Course (R-2012)
1	Mechanical Engineering Measurement and Metrology	Mechanical Measurement and Control
2	Theory of Machine -II	Theory of Machine -II
3	Fluid Mechanics	Fluid Mechanics (Sem IV)
4	Heat and mass Transfer	Heat Transfer
5	Graphical User Interface and Database Management	Database and Information Retrieval (Sem III)
6	Environmental Studies	Environmental Studies (sem I)

MECHANICAL ENGINEERING (Sem. VI)

Sr. No.	Subjects from Revised Course (R-2007)	Equivalent Subjects from Revised Course (R-2012)
1	Mechatronics	Mechatronics
2	Hydraulics Machinery	Thermal and Fluid Power Engineering
3	Mechanical Vibrations	Mechanical Vibration
4	E-Commerce and Industrial Finance	Exempted
5	Internal Combustion Engine	Internal Combustion Engine (Sem V)
6	Machine Design I	Machine Design I

MECHANICAL ENGINEERING (Sem. VII)

Sr.No.	Subjects from Revised Course (R-2007)	Equivalent Subjects from Revised Course (R-2012)
1*	Machine Design-II	Machine Design-II
2	CAD/CAM/CIM	CAD/CAM/CIM
3	Refrigeration and Air Conditioning	Refrigeration and Air Conditioning (Sem VIII)
4	Manufacturing Planning and Control	Production Planning and Control
5	Electives -I	Electives -I: (Student can select any elective from the group)
6	Project I	Project I

MECHANICAL ENGINEERING (Sem. VIII)

Sr.No.	Subjects from Revised Course (R-2007)	Equivalent Subjects from Revised Course (R-2012)
1*	Automobile Engineering	Automobile Engineering (Elective II)
2	Finite Element Analysis	Finite Element Analysis (Sem VI)
3	Industrial Engineering and Enterprise Resource Planning	Industrial Engineering and Management
4	Electives -II	Elective -II: (Student can select any elective from the group)
5	Project II	Project II

PRINTING & PACKAGING TECHNOLOGY

EQUIVALENCY OF R.2007 to R.2012 (CBGS)

Sem - III

R. 2007 Subjects	Equivalent to R. 2012 (CBGS) subject
Applied Mathematics - III	Applied Mathematics - III (Sem - III)
Packaging Introduction & Concepts	Principles of Packaging Technology (Sem - III)
Primary Packaging Materials - I	Paperbased Packaging Materials (Sem - III)
Material Science & Strength of Materials	Material Science & Technology (Sem - III)
Principles of Control Systems	--

Sem - IV

R. 2007 Subjects	Equivalent to R. 2012 (CBGS) subject
Applied Mathematics - IV	Applied Mathematics - III (Sem - III)
Primary Packaging Materials - II	Plastics in Packaging (Sem - IV)
Ancillary Packaging Materials	Ancillary Packaging Materials (Sem - V)
Introduction to Printing Technology	Introduction to Printing Technology (Sem - III)
Theory of Machines	Theory of Machine & Design (Sem - V)
Advanced Control Systems	--

Sem - V

R. 2007 Subjects	Equivalent to R. 2012 (CBGS) subject
Plastic Processing & Conversion Technologies	Plastic Processing & Conversion Technologies (Sem - V)
Prepress, Platemaking & Type-setting	--
Colour Management	Digital Imaging & Colour Management (Sem - IV)
Machine Design	Theory of Machine & Design (Sem - V)
Digital Electronics & Microprocessors	Digital Electronics & Microprocessors (Sem - IV)

PRINTING & PACKAGING TECHNOLOGY

EQUIVALENCY OF R.2007 to R.2012 (CBGS)

Sem - VI

R. 2007 Subjects	Equivalent to R. 2012 (CBGS) subject
Product Packaging - I	Food & Pharmaceutical Packaging (Sem - VI)
Printing Technologies - I	Flexographic Printing (Sem - VI)
Statistical Systems & Quality Assessment	Total Quality Management & Economics (Sem - VII)
Introduction to CAD/CAM Technologies	--
Electronics Instrumentation in Printing & Packaging	Instrumentation & Process Control (Sem - V)
Industrial Visits	Industrial Visits (Sem - VI)

Sem - VII

R. 2007 Subjects	Equivalent to R. 2012 (CBGS) subject
Product Packaging - II	Industrial Products Packaging (Sem - VI)
Printing Technologies - II	Elective - I: 3. Digital & Security Printing (Sem - VI)
Environmental Science & Waste Management	Sustainable Packaging (Sem - VII)
Packaging & Printing Machineries & Systems	Packaging Machineries & Systems (Sem - VI)
Elective - I: 1. Food Packaging Science & Technology - I	Food & Pharmaceutical Packaging (Sem - VI)
Elective - I: 1. Industrial Products Packaging - I	Industrial Products Packaging (Sem - VI)
Elective - I: 1. Self Adhesive & Narrow Web Technologies - I	Flexographic Printing (Sem - VI)

Sem - VIII

R. 2007 Subjects	Equivalent to R. 2012 (CBGS) subject
Product Preservation & Speciality Packaging	Elective - II: 1. Advanced Food Packaging (Sem - VII)
Packaging & Printing Management	Project Management & Entrepreneurship (Sem - VII)
Packaging Distribution & Logistics	Packaging Distribution & Logistics (Sem - VII)
Elective - II: 1. Food Packaging Science & Technology - II	Elective - II: 1. Advanced Food Packaging (Sem - VII)
Elective - II: 1. Industrial Products Packaging - II	Elective - II: 2. Advanced Industrial Products Packaging (Sem - VII)
Elective - II: 1. Self Adhesive & Narrow Web Technologies - II	Elective - II: 3. Labelling Technology (Sem - VII)

University of Mumbai

Equivalence of subjects B. E. Biotechnology For 2007 to 2012

Sr. No	2007		2012	
	Subject Code	Subject Name	Subject Code	Subject Name
	Sem I			
1	1.1	Applied Mathematics I	FEC101	Applied Mathematics I
2	1.2	Applied Physics I	FEC102	Applied Physics I
3	1.3	Applied Chemistry I	FEC103	Applied Chemistry I
4	1.4	Engineering Mechanics	FEC104	Engineering Mechanics
5	1.5	Basic electrical and Electronic engineering	FEC105	Basic electrical and Electronic engineering
6	1.6	Computer Programming I	FEC205	Structured Programming approach
7	1.7	Basic Workshop & practices I	FEC107	Basic Workshop practices I
	Sem II			
7	2.1	Applied Mathematics II	FEC201	Applied Mathematics II
8	2.2	Applied Physics II	FEC202	Applied Physics II
9	2.3	Applied Chemistry II	FEC203	Applied Chemistry II
10	2.4	Communication skill	FEC206	Communication skill
11	2.5	Engineering Drawing	FEC204	Engineering Drawing
12	2.6	Computer Programming II	FEC205	Structured Programming approach
13	2.7	Basic Workshop & practices II	FEC207	Basic Workshop practices II
	Sem III			
14	3.1	Applied Mathematics - III	BTC301	Applied Mathematics - III
15	3.2	Applied Bio Chemistry	BTC304	Biochemistry
16	3.3	Applied Microbiology	BTC302	Microbiology
17	3.4	Process Calculation	BTC306	Process Calculations
18	3.5	Fluid Flow & Solid handling	BTC305	Unit Operations-I
19	3.6	Information Technology and data management	MEL306	Data Base and Information Retrieval System (Mechanical E engineering Program Sem III)
	Sem IV			
20	4.1	Applied Mathematics - IV	BTC401	Applied Mathematics - IV
21	4.2	Mass Transfer Operation	BTC406	Unit Operations-II
	4.3	Analytical Methods in Biotechnology	BTC404	Analytical Methods in Biotechnology
22	4.4	Molecular Genetics	BTC402	Molecular Genetics
23	4.5	Biomaterial & Components	SEBE305	Biomaterial (from Biomedical Engineering program semester III)
24	4.6	Numerical Analysis and Modeling and simulation	BTC702	Bioprocess Modeling & Simulation
	Sem V			
25	5.1	Process Control & Instrumentation	BTC605	Process Control & Instrumentation
26	5.2	Bioinformatics –I	BTC501	Bioinformatics

27	5.3	Thermodynamics & Biochemical Engineering	BTC504	Thermodynamics & Biochemical Engineering
28	5.4	Fermentation Technology & Bio conservation	BTC403	Fermentation Technology
29	5.5	Heat Transfer Operation	BTC406	Unit Operations-II
30	5.6	Industrial organization management	CHC802	Project Engineering & Entrepreneurship Management (Chemical Engineering Sem VIII)
		Sem VI		
31	6.1	Enzyme Engineering	BTC603	Enzyme Engineering
	6.2	Bioinformatics-II	BTC601	Bioinformatics-II
32	6.3	Immunology and Immunotechnology	BTC405	Immunology and Immunotechnology
33	6.4	Plant cell and tissue culture	BTC602	Plant Cell & Tissue Culture
34	6.5	Bioreactor Analysis & technology	BTC505	Bioreactor Analysis & technology
35	6.6	Genetic Engineering & Technology	BTC502	Genetic Engineering
		Sem VII		
36	7.1	IPR Bioethics and Bio safety	BTC604	IPR, Bioethics & Bio safety
37	7.2	Environmental Biotechnology- I	BTC801	Environmental Biotechnology
38	7.3	Bioseparation & Downstream Processing Technology	BTC701	Bioseparation & Downstream Processing Technology-I
39	7.4	Process Dynamics and control	BTC605	Process Control & Instrumentation
40	7.5.1	Elective I-Bio Medical Engineering	BEBM703	Biomechanics Prosthesis and Orthosis (Biomedical Engineering Semester VII)
41	7.5.2	Elective I- Non Conventional Sources of Energy	BTC804	Elective III: Non Conventional Sources of Energy
42	7.5.3	Elective I-Protein Engineering	BTE804	Elective III: Protein Engineering
43	7.6	Project- A	BTP705	Project -A
		Sem VIII		
44	8.1	Transport Phenomenon in biotechnology	BTC305	Unit Operations-I
45	8.2	Environmental Biotechnology II	BTC801	Environmental Biotechnology
46	8.3	Project Engineering	BTE606	Elective I- Research Methodology and Scientific writing
47	8.4	Process plant operation & Safety	BTE606	Elective I- Good Laboratory Practices (GLP) & Process Safety
48	8.5.1	Elective II- Food Biotechnology	BTE704	Elective II: Food Biotechnology
49	8.5.2	Elective II-Metabolic Engineering	BTC304	Biochemistry
50	8.5.3	Elective II- Agriculture Biotechnology	BTC804	Elective III: Agriculture Biotechnology
51	8.6	Project B	BTP805	Project B

UNIVERSITY OF MUMBAI

SECOND YEAR ENGINEERING (CIVIL ENGINEERING)

SEMESTER - III

Sr. No.	R - 2007		R - 2012		
	Subjects	**Marks (Duration)**	**Subject Code**	**Equivalent Subjects as per R-2012 Scheme in lieu of the Subjects as per R-2007**	**Marks (Duration)**
1.	Applied Mathematics – III	100 (3 hrs)	CE-C301	Applied Mathematics – III	
2.	Surveying – I	100 (3 hrs)	CE-C302	Surveying – I	
3.	Strength of Materials	100 (3 hrs)	CE-C303	Strength of Materials	
4.	Building Materials & Construction	100 (3 hrs)	CE-C304	Building Materials & Construction	
5.	Engineering Geology	100 (3 hrs)	CE-C305	Engineering Geology	
6.	Fluid Mechanics – I	100 (3 hrs)	CE-C306	Fluid Mechanics – I	

SEMESTER – IV

Sr. No.	R - 2007		R - 2012		
	Subjects	**Marks (Duration)**	**Subject Code**	**Equivalent Subjects as per R-2012 Scheme in lieu of the Subjects as per R-2007**	**Marks (Duration)**
1.	Applied Mathematics – IV	100 (3 hrs)	CE-C401	Applied Mathematics – IV	
2.	Surveying – II	100 (3 hrs)	CE-C402	Surveying – II	
3.	Structural Analysis – I	100 (3 hrs)	CE-C403	Structural Analysis – I	
4.	Building Design & Drawing	100 (4 hrs)	CE-C404	Building Design & Drawing	
5.	Concrete Technology	100 (3 hrs)	CE-C405	Concrete Technology	
6.	Fluid Mechanics – II	100 (3 hrs)	CE-C406	Fluid Mechanics – II	

THIRD YEAR ENGINEERING (CIVIL ENGINEERING)

SEMESTER – V

Sr. No.	R - 2007		R - 2012		
	Subjects	Marks (Duration)	Subject Code	Equivalent Subjects as per R-2012 Scheme in lieu of the Subjects as per R-2007	Marks (Duration)
1.	Structural Analysis – II	100 (3 hrs)	CE-C501	Structural Analysis - II	
2.	Geotechnical Engineering – I	100 (3 hrs)	CE-C502	Geotechnical Engineering - I	
3.	Building Design and Drawing – II	100 (4 hrs)	CE-C503	Building Design and Drawing - II	
4.	Applied Hydraulics - I	100 (3 hrs)	CE-C504	Applied Hydraulics - I	
5.	Transportation Engineering - I	100 (3 hrs)	CE-C505	Transportation Engineering - I	

SEMESTER – VI

Sr. No.	R - 2007		R - 2012		
	Subjects	Marks (Duration)	Subject Code	Equivalent Subjects as per R-2012 Scheme in lieu of the Subjects as per R-2007	Marks (Duration)
1.	Geotechnical Engineering - II	100 (3 hrs)	CE-C601	Geotechnical Engineering - II	
2.	Design and Drawing of Steel Structures	100 (4 hrs)	CE-C602	Design and Drawing of Steel Structures	
3.	Applied Hydraulics - II	100 (3 hrs)	CE-C603	Applied Hydraulics - II	
4.	Transportation Engineering - II	100 (3 hrs)	CE-C604	Transportation Engineering - II	
5.	Environmental Engineering - I	100 (3 hrs)	CE-C605	Environmental Engineering - I	
6.	Theory of Reinforced and Prestressed Concrete	100 (3 hrs)	CE-C606	Theory of Reinforced and Prestressed Concrete	

FOURTH YEAR ENGINEERING (CIVIL ENGINEERING)

SEMESTER – VII

Sr. No.	R - 2007			R - 2012		
	Subjects		**Marks (Duration)**	**Subject Code**	**Equivalent Subjects as per R-2012 Scheme in lieu of the Subjects as per R-2007**	**Marks (Duration)**
1.	Limit State Method for Reinforced Concrete Structures		100 (3 hrs)	CE-C701	Limit State Method for Reinforced Concrete Structures	
2.	Quantity Survey, Estimation & Valuation		100 (4 hrs)	CE-C702	Quantity Survey, Estimation & Valuation	
3.	Irrigation Engineering		100 (3 hrs)	CE-C703	Irrigation Engineering	
4.	Environmental Engineering - II		100 (3 hrs)	CE-C704	Environmental Engineering - II	
5.	Elective - I				Elective - I	
	i	Advanced Surveying	100 (3 hrs)	CE-E705	Advanced Surveying	
	ii	Advanced Computational Techniques	100 (3 hrs)		Advanced Computational Techniques	
	iii	Advanced Construction Engineering	100 (3 hrs)		Advanced Construction Engineering **(Sem VIII)**	
	iv	Applied Hydrology & Flood Control	100 (3 hrs)		Applied Hydrology & Flood Control	
	v	Solid Waste Management	100 (3 hrs)		Solid Waste Management	
	vi	System Approach in Civil Engineering	100 (3 hrs)		System Approach in Civil Engineering	
	vii	Risk and Value Management	100 (3 hrs)		Risk and Value Management	
	viii	Advanced Structural Analysis	100 (3 hrs)		Advanced Structural Analysis	
	ix	Structural Dynamics	100 (3 hrs)		Structural Dynamics	
	x	Advanced Structural Mechanics	100 (3 hrs)		Advanced Structural Mechanics	
	xi	Advanced Foundation Engineering	100 (3 hrs)		Advanced Foundation Engineering	
	xii	Ground Water Hydrology	100 (3 hrs)		Ground Water Hydrology	
	xiii	Traffic Engineering & Control	100 (3 hrs)		Traffic Engineering Control	
	xiv	Air Pollution	100 (3 hrs)		Air Pollution	
	xv	Prestressed Concrete	100 (3 hrs)		Prestressed Concrete	

SEMESTER – VIII

Sr. No.	R - 2007			R - 2012		
	Subjects		**Marks (Duration)**	**Subject Code**	**Equivalent Subjects as per R-2012 Scheme in lieu of the Subjects as per R-2007**	**Marks (Duration)**
1.	Design & Drawing of Reinforced Concrete Structures		100 (4 hrs)	CE-C801	Design & Drawing of Reinforced Concrete Structures	
2.	Construction Engineering		100 (3 hrs)	CE-C802	Construction Engineering	
3.	Construction Management		100 (3 hrs)	CE-C803	Construction Management	
4.	Elective - II				Elective - II	
	i	Rock Mechanics	100 (3 hrs)	CE-E804	Rock Mechanics **(Sem-VII)**	
	ii	Geographical Information System	100 (3 hrs)		Geographical Information Systems	
	iii	Water Resources Engineering And Management	100 (3 hrs)		Water Resources Engineering Management	
	iv	Bridge Design and Engineering	100 (3 hrs)		Bridge Design Engineering	
	v	Environmental Impact and Assessment and Audit	100 (3 hrs)		Environmental Impact Assessment Audit	
	vi	Appraisal and Implementation of Infrastructures Projects	100 (3 hrs)		Appraisal Implementation of Infrastructures Projects	
	vii	Risk and Disaster Managements	100 (3 hrs)		Disaster Management	
	viii	Pavement Design and Construction	100 (3 hrs)		Pavement Design and Construction	
	ix	Advanced Design of Steel Structures	100 (3 hrs)		Advanced Design of Steel Structures	
	x	Earthquake Engineering	100 (3 hrs)		Earthquake Engineering	
	xi	Advanced Engineering Geology	100 (3 hrs)		Advanced Engineering Geology	
	xii	Soil Dynamics	100 (3 hrs)		Soil Dynamics	
	xiii	Building Services	100 (3 hrs)		Building Services	
	xiv	Design of Hydraulics Structures	100 (3 hrs)		Design of Hydraulics Structures	
	xv	Industrial Waste Treatment	100 (3 hrs)		Industrial Waste Treatment	