University of Mumbai

No. UG/ 01 of 2021

CIRCULAR:-

Attention of the Principals of the Affiliated Colleges and Directors of the recognized Institutions in Science & Technology Faculty is invited to this office circular No. UG/244 of 2017-18 dated 17th October, 2017 relating to the Equivalence/Alternate subjects of the B.E. Level Revised Scheme of 2007-08 to 2012-13 (i.e. from December 2017 Exam.).

They are hereby informed that the recommendations made by the Ad-hoc Board of Studies in Engineering under the Faculty of Science & Technology at its meeting held on 5th March, 2021 and subsequently passed by the Board of Deans at its meeting held on 22nd March,2021 <u>vide</u> item No. **6.3** and that in accordance therewith, B. E. Equivalence of Rev. 2012 to Rev.2016 scheme/syllabus, has been accepted by the Hon'ble Vice Chancellor as per the power confirmed upon him under Section 12(7) of the Maharashtra public Universities Act, 2016, has been brought into force with effect from the academic year 2020-2021, accordingly. This is applicable for First Year (FE), Second Year (SE) and Third Year (TE) Engineering examination from first half of 2021. However, BE Sem. VII and Sem. VIII students have already filled examination forms for exam starting from 1st June, 2021. Hence this equivalence will be applicable to them from Second Half of 2021 examination (i.e. Nov/Dec, 2021 examination) (The same is available on the University's website www.mu.ac.in).

MUMBAI – 400 032
10th May, 2021

(Prof. Baliram Gaikwad)
I/c. Registrar

To

The Principals of the Affiliated Colleges, and Directors of the recognized Institutions in Science & Technology Faculty. (Circular No. UG/334 of 2017-18 dated 9th January, 2018.)

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No. UG/   -A of 2021   MUMBAI-400 032   10th May, 2021

Copy forwarded with Compliments for information to:-
1) The Dean, Faculty of Science & Technology,
2) The Chairman,   Board of Studies in Electronics Engineering,
3) The Director, Board of Examinations and Evaluation,
4) The Director, Board of Students Development,
 5) The Co-ordinator, University Computerization Centre,

(Prof. Baliram Gaikwad)
I/c. Registrar

UNIVERSITY OF MUMBAI

Equivalent / Alternate Subjects of
Rev-2012 toRev-2016 Scheme/Syllabus
in
Engineering

FACULTY OF SCIENCE & TECHNOLOGY

(with effect from the academic year 2020-21)

Equivalent / Alternate subjects of Rev 2012 to Rev 2016 scheme/ syllabus in Engineering

First Year Engineering: Equivalent Subjects (Rev-2012 to Rev 2016)

Sr. No	Subject Code	Subject Name	Subject Code	Subject Name	Semester
Rev-2012 scheme 'A' (Semester-I)			Rev-2016 scheme 'B'(Semester-I)		
Semester-I					
1.	FEC101	Applied Mathematics I	FEC101	Applied Mathematics-I	I
2.	FEC102	Applied Physics-I	FEC102	Applied Physics-I	I
3.	FEC103	Applied Chemistry-I	FEC103	Applied Chemistry-I	I
4.	FEC104	Engineering Mechanics	FEC104	Engineering Mechanics	I
5.	FEC105	Basic Electrical Engineering	FEC105	Basic Electrical Engineering	I
6.	FEC106	Environmental Studies	FEC106	Environmental Studies	I
7.	FEL101	Workshop Practice-I	FEL101	Workshop Practice-I	I
R-2012 scheme 'A' (Semester-II)			R-2016 scheme 'B' (Semester-II)		
1.	FEC201	Applied Mathematics-II	FEC201	Applied Mathematics-II	II
2.	FEC202	Applied Physics-II	FEC202	Applied Physics-II	II
3.	FEC203	Applied Chemistry-II	FEC203	Applied Chemistry-II	II
4.	FEC204	Engineering Drawing	FEC204	Engineering Drawing	II
5.	FEC205	Structured Programming Approach	FEC205	Structured Programming Approach	II
6.	FEC206	Communication Skills	FEC206	Communication Skills	II
7.	FEL201	Workshop Practice-II	FEL201	Workshop Practice-II	II

CIVIL ENGINEERING: SUBJECTS EQUIVALENCE (R 2012 - R 2016)

Code	R-2012 CBSGS Subject	Sem.	R-2016 CBCGS Subject	Code	Sem	Equivalent / Alternate
	SEM.III CIVIL ENGINEERING					
CE-C301	Applied Mathematics III	III	Applied Mathematics III	CE-C301	III	Equivalence
CE-C302	Surveying – I	III	Surveying – I	CE-C302	III	Equivalence
CE-C303	Strength of Materials	III	Strength of Materials	CE-C303	III	Equivalence
CE-C304	Building Materials Construction	III	Building Materials & Construction Technology	CE-C405	IV	Equivalence
CE-C305	Engineering Geology	III	Engineering Geology	CE-C304	III	Equivalence
CE-C306	Fluid Mechanics – I	III	Fluid Mechanics - I	CE-C305	III	Equivalence
	SEM.IV CIVIL ENGINEERING					
CE-C401	Applied Mathematics – IV	IV	Applied Mathematics – IV	CE-C401	IV	Equivalence
CE-C402	Surveying – II	IV	Surveying – II	CE-C402	IV	Equivalence
CE-C403	Structural Analysis – I	IV	Structural Analysis – I	CE-C403	IV	Equivalence
CE-C404	Building Design and Drawing – I	IV	Building Design & Drawing	CE-C404	IV	Equivalence
CE-C405	Concrete Technology	IV	Building Materials & Construction Technology	CE-C405	IV	Equivalence
CE-C406	Fluid Mechanics – II	IV	Fluid Mechanics - II	CE-C406	IV	Equivalence
	SEM. V CIVIL ENGINEERING					
CE-C501	Structural Analysis – II	V	Structural Analysis – II	CE-C501	V	Equivalence
CE-C502	Geotechnical Engg.– I	V	Geotechnical Engg.– I	CE-C502	V	Equivalence
CE-C503	Building Design and Drawing – II	V	Building Design & Drawing	CE-C404	IV	Equivalence
CE-C504	Applied Hydraulics – I	V	Applied Hydraulics	CE-C503	V	Equivalence
CE-C505	Transportation Engg. – I	V	Transportation Engineering -II	CE-C603	VI	Equivalence
	SEM. VI CIVIL ENGINEERING					
CE-C601	Geotechnical Engg. – II	VI	Geotechnical Engg. – II	CE-C601	VI	Equivalence
CE-C602	Design and Drawing of Steel Structures	VI	Design and Drawing of Steel Structures	CE-C602	VI	Equivalence
CE-C603	Applied Hydraulics – II	VI	Applied Hydraulics	CE-C503	V	Equivalence
CE-C604	Transportation Engg. – II	VI	Transportation Engineering - I	CE C 505	V	Equivalence
CE-C605	Environmental Engg – I	VI	Environmental Engg – I	CE-C504	V	Equivalence
CE-C606	Theory of Reinforced Prestressed Concrete	VI	Theory of Reinforced Concrete Structures	CE-C702	VII	Equivalence
	SEM. VII CIVIL ENGINEERING					
CE-C701	Limit State Method for Reinforced Concrete Structures	VII	Theory of Reinforced Concrete Structures	CE-C702	VII	Equivalence
CE-C702	Quantity Survey Estimation and Valuation	VII	Quantity Survey Estimation and Valuation	CE-C701	VII	Equivalence
CE-C703	Irrigation Engineering	VII	Water Resources Engineering - I	CE-C605	VI	Equivalence
CE-C704	Environmental Engineering – II	VII	Environmental Engineering - II	CE-C604	VI	Equivalence
CE-E705	Elective – Advanced Surveying	VII	Advanced Surveying	CE-DLO5061	V	Equivalence
CE-E705	Elective – Rock Mechanics	VII	Soil Dynamics	CE-	VIII	Alternate

				DLO8036		
CE-E705	Elective – Applied Hydrology Flood Control	VII	Applied Hydrology and Flood Control	EL-DLO8037	VIII	Equivalence
CE-E705	Elective – Solid Waste Management	VII	Solid Waste Management	CE-DLO7042	VII	Equivalence
CE-E705	Elective – Systems Approach in Civil Engineering	VII	Operations Research	ILO7015	VII	Equivalence
CE-E705	Elective – Risk Value Management	VII	Product Lifecycle Management	ILO7011	VII	Alternate
CE-E705	Elective – Advanced Structural Analysis	VII	Advanced Structural Analysis	CE-DLO6064	VI	Equivalence
CE-E705	Elective – Structural Dynamics	VII	Structural Dynamics	CE-DLO7044	VII	Equivalence
CE-E705	Elective – Advanced Structural Mechanics	VII	Advanced Structural Mechanics	CE-DLO 5064	V	Equivalence
CE-E705	Elective – Advanced Foundation Engineering	VII	Foundation Analysis and Design	CE-DLO7046	VII	Equivalence
CE-E705	Elective – Ground Water Hydrology	VII	: Applied Hydrology and Flood Control	CE-DLO8037	VIII	Alternate
CE-E705	Elective – Pavement Subgrade Materials	VII	Pavement Subgrade and Materials	CE – DLO7043	VII	Equivalence
CE-E705	Elective – Air Pollution	VII	Industrial Waste Treatment	CE-DLO8032:	VIII	Alternate
CE-E705	Elective – Pre-stressed Concrete	VII	Pre-stressed Concrete	CE-DLO7041	VII	Equivalence
CE-E705	Elective – Traffic Engineering Control	VII	Traffic Engineering and Management	CE – DLO6062	VI	Equivalence
CE-E705	Elective – Reinforced Concrete Repairs Maintenance	VII	Building Services and Repairs	DLO5063	V	Equivalence
CE-E705	Elective – Advanced Computational Techniques	VII	Research Methodology	ILO8026	VIII	Equivalence
SEM. VIII CIVIL ENGINEERING						
CE-C801	Design and Drawing of Reinforced Concrete Structures	VIII	Design and Drawing of Reinforced Concrete Structures	CE-C801	VIII	Equivalence
CE-C802	Construction Engineering	VIII	Adv. Construction Equipments	CE-DLO6061	VI	Alternate
CE-C803	Construction Management	VIII	Construction Management	CE-C802	VIII	Equivalence
CE-E804	Elective – Advanced Construction Engineering	VIII	Advanced Construction Equipment	CE-DLO6061	VI	Equivalence
CE-E804	Elective – Advanced Engineering Geology	VIII	Soil Dynamics	CE-DLO8036	VIII	Alternate
CE-E804	Elective – Geographical Information Systems	VIII	:Application of GIS and Remote Sensing	CE-DLO7045	VII	Equivalence
CE-E804	Elective – Water Resources Engineering Management	VIII	Water Resource Engineering-II	CE-C703	VII	Equivalence
CE-E804	Elective – Bridge Design Engineering	VIII	Bridge Design and Engineering	CE-DLO 8034	VIII	Equivalence
CE-E804	Elective – . Environmental Impact Assessment Audit	VIII	Environment Management	ILO8029	VIII	Alternate
CE-E804	Elective – Appraisal Implementation of	VIII	Appraisal Implementation of	CE-DLO 8035	VIII	Equivalence

	Infrastructure Projects		Infrastructure Projects			
CE-E804	Elective – Disaster Management	VIII	Disaster Management and Mitigation Measures	ILO 7017	VII	Equivalence
CE-E804	Elective –. Pavement Design and Construction	VIII	Pavement Design and Construction	CE – DLO8083	VIII	Equivalence
CE-E804	Elective – Advanced Design of Steel Structures	VIII	Advanced Design of Steel Structures	CE-DLO 8031	VIII	Equivalence
CE-E804	Elective – Earthquake Engineering	VIII	Structural Dynamics	CE-DLO7044	VII	Alternate
CE-E804	Elective – Soil Dynamics	VIII	Soil Dynamics	CE-DLO8036	VIII	Equivalence
CE-E804	Elective – Building Services	VIII	Building Services & Repairs	CE-DLO 5063	V	Equivalence
CE-E804	Elective – Design of Hydraulic Structures	VIII	Water Resource Engineering -II	CE-C703	VII	Alternate
CE-E804	Elective – Industrial Waste Treatment	VIII	Industrial Waste Treatment	CE-DLO8032	VIII	Equivalence
CE-E804	Elective – Transportation Planning Economics	VIII	Traffic Engineering and Management	CE–DLO6062	VI	Equivalence
CE-E804	Elective – Advanced Repairs and Rehabilitation of Structures	VIII	Building Services and Repairs	DLO5063	V	Equivalence
CE-E804	Elective – Geosynthetics and Reinforced Structures	VIII	Foundation Analysis and Design	CE-DLO7046	VII	Alternate

Mechanical Engineering: Equivalent Subjects (Rev-2012 to Rev 2016)

Sr No	SCHEME R-2012 CBGS		SCHEME R-2016 CBCGS		
	Subject	Subject Name	Su	Subject Name	Sem
	SEM III				
1	MEC301	Applied Mathematics III	MEC301	Applied Mathematics III	III
2	MEC302	Thermodynamics	MEC302	Thermodynamics	III
3	MEC303	Strength of Materials	MEC303	Strength of Materials	III
4	MEC304	Production Process- I	MEC304	Production Process I	III
	SEM-IV				
1	MEC401	AppliedMathematics IV	MEC401	Applied Mathematics IV	IV
2	MEC402	Fluid Mechanics	MEC402	Fluid Mechanics	IV
3	MEC403	Theory of Machines- I	MEC405	Kinematics of Machinery	IV
4	MEC404	Production Process- II	MEC404	Production Process II	IV
5	MEC405	Material Technology	MEC305	Material Technology	III
6	MEC406	Industrial Electronics	MEC403	Industrial Electronics	IV
	SEM-V				
1	MEC501	I. C. Engines	MEC501	Internal Combustion Engines	V
2	MEC502	Mechanical Measurements	MEC502	Mechanical Measurements and	V
3	MEC503	Production Process-III	MEDLO5013	Design of Jigs and Fixtures	V
4	MEC504	Theory of Machines- II	MEC504	Dynamics of Machinery	V
5	MEC505	Heat Transfer	MEC503	Heat Transfer	V
	SEM-VI				
1	MEC601	Metrology and Quality	MEC601	Metrology and Quality engineering	VI
2	MEC602	Machine Design I	MEC602	Machine Design I	VI
3	MEC603	Mechanical Vibrations	MEDLO7031	Mechanical Vibrations	VII
4	MEC604	Thermal and Fluid Power	MEC803	Power Engineering	VIII
5	MEC605	Mechatronics	MEDLO6021	Mechatronics	VI
6	MEC606	Finite Element Analysis	MEC603	Finite Element analysis	VI
	SEM-VII				
1	MEC701	Machine Design -II	MEC701	Machine Design II	VII
2	MEC702	CAD/CAM/CAE	MEC702	CAD/CAM/CAE	VII
3	MEC703	Mechanical Utility Systems	MEDLO7033	Pumps, Compressors and Fans	VII
4	MEC704	Production Planning and	MEC703	Production Planning and Control	VII
5	MEE701X	Elective- I	MEDLO703X	Department Level Optional Course	VII
6	MEP701	Project- I	MEP701	Project I	VII
	SEM-VIII				
1	MEC801	Design of Mechanical Systems	MEC801	Design of Mechanical Systems	VIII
2	MEC802	Industrial Engineering and	MEC802	Industrial Engineering and	VIII
3	MEC803	Refrigeration and Air	MEC604	Refrigeration and Air Conditioning	VI
4	MEE802X	Elective- II	MEDLO804X	Department Level Optional Course	VIII
5	MEP802	Project- II	MEL803	Project II	VIII

Electrical Engineering: Equivalent Subjects (Rev-2012 to Rev 2016)

Sr No	SCHEME R-2012 CBGS		SCHEME R-2016 CBCGS			
	Subject Code	Subject Name	Subject Code	Subject Name	Sem	Branch
	SEM III					
1	EEC301	Applied Mathematics - III	EEC301	Applied Mathematics - III	III	Electrical
2	EEC302	Electronic Devices and Circuits	EEC302	Electronic Devices and Circuits	III	Electrical
3	EEC303	Conventional and Nonconventional Power Generation	EEC303	Conventional and Non-Conventional Power Generation	III	Electrical
4	EEC304	Electrical Networks	EEC406	Electrical Network	IV	Electrical
5	EEC305	Electrical and Electronic Measurements	EEC304	Electrical and Electronics Measurement	III	Electrical
6	EEC306	Object Oriented Programming and Methodology	EEL302	Object Oriented Programming and Methodology Lab	III	Electrical
	SEM-IV					
1	EEC401	Applied Mathematics - IV	EEC401	Applied Mathematics - IV	IV	Electrical
2	EEC402	Elements of Power System	EEC402	Power System - I	IV	Electrical
3	EEC403	Electrical Machines –I	EEC305	Electrical Machine –I	III	Electrical
4	EEC404	Signal Processing	EEC603	Signal Processing	VI	Electrical
5	EEC405	Analog and Digital Integrated Circuits	EEC405	Analog and Digital Integrated Circuits	IV	Electrical
6	EEC406	Numerical Methods and Optimization Techniques	CHC401	Applied Mathematics- IV	IV	Chemical
	SEM-V					
1	EEC501	Protection and Switchgear Engineering	EEC601	Protection and Switchgear Engineering	VI	Electrical
2	EEC502	Electrical Machines - II	EEC502	Electrical Machines – III	V	Electrical
3	EEC503	Electromagnetic Fields and Waves	EEC404	Electromagnetic Field and wave	IV	Electrical
4	EEC504	Power Electronics	EEC504	Power Electronics	V	Electrical
5	EEC505	Communication Engineering	EEDLO5011	Communication Engineering	V	Electrical
6	EEC506	Business Communication and Ethics	EEL501	Business Communication and Ethics	V	Electrical
	SEM-VI					

1	EEC601	Power System Analysis	EEC501	Power System - II	V	Electrical
2	EEC602	Electrical Machines – III	EEC602	Electrical Machines – IV	VI	Electrical
3	EEC603	Utilization of Electrical Energy	EEDLO5013	Utilization of Electrical Energy	V	Electrical
4	EEC604	Control System – I	EEC503	Control System - I	V	Electrical
5	EEC605	Microcontroller and its Applications	EEC604	Microcontroller and its Applications	VI	Electrical
6	EEC606	Project Management	ILO8021	Project Management	VIII	Electrical
	SEM-VII					
1	EEC701	Power System Operation and Control	EEC701	Power System - III	VII	Electrical
2	EEC702	High Voltage DC Transmission	EEC703	High Voltage Direct Current	VII	Electrical
3	EEC703	Electrical Machine Design	EEC403	Electrical Machines – II	IV	Electrical
4	EEC704	Control System – II	EEC605	Control System - II	VI	Electrical
5	EEE701	High Voltage Engineering	EEDLO7031	High Voltage Engineering	VII	Electrical
6	EEE702	Analysis and Design of Power Switching	EEDLO6023	Advanced Power Electronics	VI	Electrical
7	EEE703	Power System Modelling	EEDLO8043	Power System Modeling and	VIII	Electrical
8	EEE704	Digital Signal Controllers and its Application	EEDLO6021	Digital Communication	VI	Electrical
9	EEE705	Advanced Lighting Systems	EEDLO8041	Illumination Engineering	VIII	Electrical
10	EEE706	Renewable Energy and Energy Storage Systems	EEDLO5012	Renewable Energy and Energy Storage	V	Electrical
11	EEE707	Optimization Techniques and its Applications	ILO7015	Operation Research	VII	Electrical
	SEM-VIII					
1	EEC801	Design, Management and Auditing of Electrical Systems	EEC801	Design, Management and Auditing of Electrical Systems	VIII	Electrical
2	EEC802	Drives and Control	EEC702	Drives and Control	VII	Electrical
3	EEC803	Power System Planning and Reliability	EEDLO8044	Power System Planning and Reliability	VIII	Electrical
4	EEE801	Flexible AC Transmission Systems	EEC802	Flexible AC Transmission	VIII	Electrical
5	EEE802	Electric and Hybrid Electric Vehicle Technology	EEDLO7032	Electric Vehicle Technology	VII	Electrical
6	EEE803	Power Quality	EEDLO7034	Power Quality	VII	Electrical
7	EEE804	Smart Grid Technology	EEDLO8042	Smart Grid	VIII	Electrical

8	EEE805	Power System Dynamics and Control	EEDLO8043	Power System Modeling and Control	VIII	Electrical
9	EEE806	Non-linear Control System	EEDLO7033	Industrial Controller	VII	Electrical
10	EEE807	Entrepreneurship Development	ILO8023	Entrepreneurship Development and Management	VIII	Electrical

Computer Engineering: Equivalent / Alternate Subjects (Rev-2012 to Rev-2016)

Sr. No	SCHEME R-2012 CBGS		SCHEME R-2016 CBCGS		
	Subject Code	Subject Name	Subject Code	Subject Name	Sem
		SEMESTER- III			
1	CSC301	Applied Mathematics III	CSC301	Applied Mathematics -III	III
2	CSC302	Object Oriented Programming Methodology	CSL304	OOPM(Java) Lab	III
3	CSC303	Data Structures	CSC305	Data Structures	III
4	CSC304	Digital Logic Design and Analysis	CSC302	Digital Logic Design and Analysis	III
5	CSC305	Discrete Structures	CSC303	Discrete Mathematics	III
6	CSC306	Electronic Circuits and Communication Fundamentals	CSC304	Electronic Circuits and Communication Fundamentals	III
		SEMESTER-IV			
1	CSC401	Applied Mathematics IV	CSC401	Applied Mathematics- IV	IV
2	CSC402	Analysis of Algorithms	CSC402	Analysis of Algorithms	IV
3	CSC403	Computer Organization and Architecture	CSC403	Computer Organization and Architecture	IV
4	CSC404	Data Base Management systems	CSC502	Database Management System	V
5	CSC405	Theoretical Computer Science	CSC504	Theory of Computer Science	V
6	CSC406	Computer Graphics	CSC404	Computer Graphics	IV
		SEMESTER-V			
1	CPC501	Microprocessor	CSC501	Microprocessor	V
2	CPC502	Operating Systems	CSC405	Operating System	IV
3	CPC503	Structured and Object Oriented Analysis and Design	CSL601	Software Engineering Lab	VI
4	CPC504	Computer Networks	CSC503	Computer Network	V
5	CPL501	Web Technologies Laboratory	CSL504	Web Design Lab	V
6	CPL502	Business Communication and Ethics	CSL505	Business Comm. & Ethics	V
		SEMESTER-VI			
1	CPC601	System Programming and Compiler Construction	CSC602	System Programming & Complier Construction	VI
2	CPC602	Software Engineering	CSC601	Software Engineering	VI
3	CPC603	Distributed Databases	CSDLO6022	Advance Database System	VI
4	CPC604	Mobile Communication and Computing	CSC702	Mobile Communication & Computing	VI
5	CPE601X	Elective-I			
	CPE6011	Operation Research	ILO7015	Operation Research	VII
	CPE6012	Project Management	ILO7013	Management Information System	VII
	CPE6013	Foreign Language :German	ILO7016	Cyber Security and Laws	VII

	CPE6014	Foreign Language : French	ILO8028	Digital Business Management	VIII
6	CPL601	Network Programming Laboratory	CSL502	Computer Network Lab	V
		SEMESTER-VII			
1	CPC701	Digital Signal Processing	CSC701	Digital Signal & Image Processing	VII
2	CPC702	Cryptography and System Security	CSC604	Cryptography & System Security	VI
3	CPC703	Artificial Intelligence	CSC703	Artificial Intelligence & Soft Computing	VII
4	CPE7042X	Elective-II			
	CPE7021	Advance Algorithms	CSDLO5013	Advance Algorithm	V
	CPE7022	Computer Simulation and Modeling	DLO8011	High Performance Computing	VIII
	CPE7023	Image Processing	CSDLO5011	Multimedia System	V
	CPE7024	Software Architecture	ILO8021	Project Management	VIII
	CPE7025	Soft Computing	CSL703	Artificial Intelligence & Soft Computing Lab	VII
	CPE7026	ERP and Supply Chain Management	CSDLO6023	Enterprise Resource Planning	VI
5	CPP701	Project I	CSM705	Major Project-I	VII
6	CPL701	Network Threats and Attacks Laboratory	CSL702	Mobile App. Development. Tech. Lab	VII
		SEMESTER-VIII			
1	CPC801	Data Warehouse and Mining	CSC603	Data Warehousing & Mining	VI
2	CPC802	Human Machine Interaction	CSC801	Human Machine Interaction	VIII
3	CPC803	Parallel and distributed Systems	CSC802	Distributed Computing	VIII
4	CPE803X	Elective-III			
	CPE8031	Machine Learning	CSDLO6021	Machine Learning	VI
	CPE8032	Embedded Systems	CSDLO7033	Robotics	VII
	CPE8033	Adhoc wireless networks	DLO8013	Adhoc Wireless Network	VIII
	CPE8034	Digital Forensic	CSDLO7031	Advance System Security & Digital Forensics	VII
	CPE8035	Big data Analytics	CSDLO7032	Big Data & Analytics	VII
5	CPP802	Project II	CSM805	Major Project II	VIII
6	CPL801	Cloud Computing Laboratory	CSL802	Cloud Computing Lab	VIII

Information Technology : Equivalent / Alternate Subjects (Rev-2012 to Rev-2016)

Sr.No.	SCHEME R-2012 CBGS		SCHEME R-2016 CBCGS	
	Subject Code	Subject Name	Subject Code	Subject Name
	SEM-III		**SEM III**	
01	SEITC301	Applied Mathematics – III	ITC301	Applied Mathematics III (Sem III)
02	SEITC302	Data Structure and Algorithm Analysis	ITC303	Data Structures & Analysis (Sem III)
03	SEITC303	Object Oriented Programming Methodology	ITL304	Java Programming Lab (Sem III)
04	SEITC304	Analog and Digital Circuits	ITC302	Logic Design (Sem III)
05	SEITC305	Database Management Systems	ITC304	Database Management System (Sem III)
06	SEITC306	Principles of Analog and Digital Communication	ITC305	Principle of Communications (Sem III)
	SEM IV		**SEM IV**	
07	SEITC401	Applied Mathematics-IV	ITC401	Applied Mathematics-IV (Sem IV)
08	SEITC402	Computer Networks	ITC402	Computer Networks (Sem IV)
09	SEITC403	Computer Organization and Architecture	ITC404	Computer Organization and Architecture (Sem IV)
10	SEITC404	Automata Theory	ITC405	Automata Theory (Sem IV)
11	SEITC405	Web Programming	ITC502	Internet Programming (Sem V)
12	SEITC406	Information Theory and Coding	ITC402	Computer Networks (Sem IV)
	SEM V		**SEM V**	
13	TEITC501	Computer Graphics and Virtual Reality	ITDLO5015	Computer Graphics & Virtual Reality (Sem V) (Department Level Optional Course-I)
14	TEITC502	Operating Systems	ITC403	Operating Systems (Sem IV)
15	TEITC503	Microcontroller and Embedded Systems	ITC501	Microcontroller and Embedded Programming (Sem V)
16	TEITC504	Advanced Database Management Systems	ITC503	Advanced Data Management Technology (Sem V)
17	TEITC505	Open-Source Technologies	ITC403	Operating Systems (Sem IV)
	SEM VI		**SEM VI**	
18	TEITC601	Software Engineering	ITC601	Software Engineering with Project Management (Sem VI)
19	TEITC602	Distributed Systems	ITDLO7033	High Performance Computing (Sem VII-Department Level Optional Course-III)
20	TEITC603	System and Web Security	ITC504	Cryptography & Network (Sem V)
21	TEITC604	Data Mining and Business Intelligence	ITC602	Data Mining and Business (Sem VI)
22	TEITC605	Advance Internet Technology	ITDLO6021	Advance Internet Programming (Sem VI-Department Level Optional Course -II)
	SEM VII		**SEM VII**	
23	ITC701	Software Project Management	ITC601	Software Engineering with Project Management (Sem VI)
24	ITC702	Cloud Computing	ITC603	Cloud Computing & Services (Sem VI)

25	ITC703	Intelligent System	ITC703	Artificial Intelligence (Sem VII)
26	ITC704	Wireless Technology	ITDLO7032	Mobile Application Development (Sem VII-Department Level Optional Course-III)
27	ITC7051	Elective: -Image Processing	ITDLO5012	Image Processing (Sem V-Department Level Optional Course-I)
28	ITC7052	Elective: -Software Architecture	ITDLO6022	Software Architecture (Sem VI-Department Level Optional Course-II)
29	ITC7053	Elective: -E-Commerce & E-Business	ITDLO5013	E-Commerce & E-Business (Sem V-Department Level Optional Course-I)
30	ITC7054	Elective: -Multimedia Systems	ITDLO6024	Multimedia Systems (Sem VI-Department Level Optional Course-II)
31	ITC7055	Elective: -Usability Engineering	ITDLO8041	User Interaction Design (Sem VIII-Department Level Optional Course-IV)
32	ITC7056	Elective: -Ubiquitous Computing	ITC802	Internet of Everything (Sem VIII)
33	ITP706	Project-I	ITM705	Project-I (Sem VII)
	SEM VIII		SEM VIII	
34	ITC801	Storage Network Management and Retrieval	ITDLO7031	Storage Area Networks (Sem VII-Department Level Optional Course-III)
35	ITC802	Big Data Analytics	ITC801	Big Data Analytics (Sem VIII)
36	ITC803	Computer Simulation & Modelling	ITDLO5015	Computer Graphics & Virtual Reality (Sem V) (Department Level Optional Course-I)
37	TC8041	Elective: -Enterprise Resource Planning	ITDLO8045	Enterprise Resource Planning (Sem VIII-Department Level Optional Course-IV)
38	ITC8042	Elective: -Wireless Sensor Networks	ITC802	Internet of Everything (Sem VIII)
39	ITC8043	Elective: -Geographical Information Systems	ILO8021	Project Management (Sem VIII-Institute Level Optional Course-II)
40	ITC8044	Elective: -Robotics	ITDLO8044	Robotics (Sem VIII-Department Level Optional Course-IV)
41	ITC8045	Elective: -Soft Computing	ITDLO7035	Soft Computing (Sem VII-Department Level Optional Course-III)
42	ITC8046	Elective: -Software Testing & Quality Assurance	ITDLO7034	Software Testing and Quality Assurance (Sem VII-Department Level Optional Course-III)
43	ITP805	Project - II	ITM805	Project-II (Sem VIII)

SEM III (ELECTRONICS ENGG)

CODE	R - 2012: CBCS SUBJECTS	SEM	CODE	R – 2016: CBCS SUBJECTS	SEM	EQUIVALENT/ ALTERNATE
EXS301	*Applied Mathematics III	III	ELX301	Applied Mathematics III	III	Equivalent
EXC302	Electronic Devices	III	ELX302	Electronic Devices and Circuits I	III	Equivalent
EXC303	Digital Circuits and Design	III	ELX303	Digital Circuit Design	III	Equivalent
EXC304	Circuit Theory	III	ELX304	Electrical Network Analysis and Synthesis	III	Equivalent
EXC305	Electronic Instruments and Measurements	III	ELX305	Electronic Instrumentation and Measurements	III	Equivalent
EXL301	Electronic Devices Laboratory	III	ELXL301	Electronic Devices and Circuits I Lab	III	Equivalent
EXL302	Digital Circuits and Design Laboratory	III	ELXL302	Digital Circuit Design Lab.	III	Equivalent
EXL303	Circuit Theory and Measurements Laboratory	III	ELXL303	Electrical Network Analysis and Synthesis Lab	III	Equivalent
EXL304	*Object Oriented Programming Methodology Laboratory	III	ELXL304	Object Oriented Programming Methodology Lab.	III	Equivalent

SEM IV (ELECTRONICS ENGG)

CODE	R - 2012: CBCS SUBJECTS	SEM	CODE	R – 2016: CBCS SUBJECTS	SEM	EQUIVALENT/ ALTERNATE
EXS 401	*Applied Mathematics IV	IV	ELX401	Applied Mathematics IV	IV	Equivalent
EXC402	Discrete Electronic Circuits	IV	ELX 402	Electronic Devices and Circuits II	IV	Equivalent
EXC 403	Microprocessor and Peripherals	IV	ELX 403	Microprocessors and Applications	IV	Equivalent
EXC404	Principles of Control Systems	IV	ELX 406	Linear Control Systems	IV	Equivalent
EXC405	Fundamentals of Communication Engineering	IV	ELX 405	Principles of Communication Engineering	IV	Equivalent
EXC406	Electrical Machines	IV	ELX 404	Digital System Design	IV	Alternate
EXL401	Discrete Electronics Laboratory	IV	ELXL 401	Electronic Devices and Circuits II Lab	IV	Equivalent
EXL402	Microprocessor and Peripherals Laboratory	IV	ELXL 402	Microprocessors and Applications Lab	IV	Equivalent
EXL403	Control System and Electrical Machines Laboratory	IV	ELXL 403	Digital System Design Lab.	IV	Equivalent
EXL 404	Communication Engineering Laboratory	IV	ELXL 404	Principles of Communication Engineering Lab.	IV	Equivalent

SEM V (ELECTRONICS ENGG)

CODE	R - 2012: CBCS SUBJECTS	SEM	CODE	R – 2016: CBCS SUBJECTS	SEM	EQUIVALENT/ ALTERNATE
EXC501	Microcontrollers and Applications	V	ELX501	Microcontrollers and Applications	V	Equivalent
EXC502	Design with Linear Integrated Circuits	V	ELX 504	Design with Linear Integrated Circuits	V	Equivalent
EXC503	Electromagnetic Engineering	V	ELX 503	Engineering Electromagnetics	V	Equivalent
EXC504	Signals and Systems	V	ELX 604	Signals and systems	VI	Equivalent
EXC505	Digital Communication	V	ELX 502	Digital Communication	V	Equivalent

EXS506	* Business Communication and Ethics	V	ELX 505	Business Communication & Ethics	V	Equivalent
EXL501	Microcontrollers and Applications Laboratory	V	ELXL501	Microcontrollers and Applications Lab	V	Equivalent
EXL502	Design with Linear Integrated Circuits Laboratory	V	ELXL503	Design with Linear Integrated Circuits Lab.	V	Equivalent
EXL503	Digital Communication Laboratory	V	ELXL502	Digital Communication Lab.	V	Equivalent
EXL504	Mini Project I	V	ELXL DLO5012	Digital Control System Laboratory	V	Alternate

CODE	R - 2012: CBCS SUBJECTS	SEM	CODE	R – 2016: CBCS SUBJECTS	SEM	EQUIVALENT/ ALTERNATE
EXC601	Basic VLSI Design	VI	ELX 603	VLSI Design	VI	Equivalent
EXC602	Advanced Instrumentation Systems	VI	ELX701	Instrumentation System Design	VII	Equivalent
EXC603	Computer Organization	VI	ELX DLO6024	Computer Organization and Architecture	VI	Equivalent
EXC604	Power Electronics I	VI	ELX702	Power Electronics	VII	Equivalent
EXC605	Digital Signal Processing and Processors	VI	ELX703	Digital Signal Processing	VII	Equivalent
EXC606	Modern Information Technology for Management	VI	ILO7013	Management Information System	VII	Equivalent
EXL601	VLSI Design Laboratory	VI	ELXL 603	VLSI Design Lab.	VI	Equivalent
EXL602	Digital Signal Processing and Processors Laboratory	VI	ELXL703	Digital Signal Processing Lab.	VII	Equivalent
EXL603	Advanced Instrumentation and Power Electronics Laboratory	VI	ELXL701	Instrumentation System Design Lab.	VII	Equivalent
EXL604	Mini Project II	VI	ELXL702	Power Electronics Lab.	VII	Alternate

Electronics Engineering: Equivalent / Alternate Subjects (Rev-2012 to Rev-2016)

CODE	R - 2012: CBCS SUBJECTS	SEM	CODE	R – 2016: CBCS SUBJECTS	SEM	EQUIVALENT/ ALTERNATE
EXC701	Embedded System Design	VII	ELX601	Embedded System and RTOS	VI	Equivalent
EXC702	IC Technology	VII	ELXDLO7034	Integrated Circuit Technology	VII	Equivalent
EXC703	Power Electronics –II	VII	ELXDLO8041	Advanced Power Electronics	VIII	Equivalent
EXC704	Computer Communication Networks	VII	ELX 602	Computer Communication Network	VI	Equivalent
EXC 705X	Elective - I	VII	ELXDLO6023	Wireless Communication	VI	Alternate
EXC 706	Project - I	VII	ELXL704	Project-I	VII	Equivalent
EXL701	Embedded System Design Laboratory	VII	ELXL601	Embedded System and RTOS Lab.	VI	Equivalent
EXL702	IC Technology Laboratory	VII	ELXLDLO7034	IC Technology	VII	Equivalent
EXL703	Power Electronics –II Laboratory	VII	ELXDLO8041	Advanced Power Electronics Lab.	VIII	Equivalent
EXL704	Computer Communication Networks Laboratory	VII	ELXL 602	Computer Communication and Networks Laboratory	VI	Equivalent
EXL705X	Elective – I Laboratory	VII	ELXL DLO	Wireless Communication	VI	Alternate

CODE	R - 2012: CBCS SUBJECTS	SEM	CODE	R – 2016: CBCS SUBJECTS	SEM	EQUIVALENT/ ALTERNATE
			6023	Laboratory		
SEM VIII (ELECTRONICS ENGG)						
CODE	R - 2012: CBCS SUBJECTS	SEM	CODE	R – 2016: CBCS SUBJECTS	SEM	EQUIVALENT/ ALTERNATE
EXC801	CMOS VLSI Design	VIII	ELX 802	Analog and Mixed VLSI Design	VIII	Equivalent
EXC802	Advanced Networking Technologies	VIII	ELXDLO 7032	Advance Networking Technologies	VII	Equivalent
EXC803	MEMS Technology	VIII	ELXDLO 8042	MEMS Technology	VIII	Equivalent
EXC804X	Elective -II	VIII	ELX801	Internet of Things	VIII	Equivalent
EXC806	Project - II	VIII	ELXL803	Project-II	VIII	Equivalent
EXL801	CMOS VLSI Design Laboratory	VIII	ELXL802	Analog and Mixed VLSI Design Lab.	VIII	Equivalent
EXL802	Advanced Networking Technologies Laboratory	VIII	ELXLDLO 7032	Advanced Networking Technologies Laboratory	VII	Equivalent
EXL803	MEMS Laboratory	VIII	ELXDLO 8042	MEMS Technology Lab.	VIII	Equivalent
EXL804X	Elective –II Laboratory	VIII	ELXL801	Internet of Things Lab.	VIII	Alternate

Semester III Electronics and Telecommunication Engineering						
Code	R_2012 CBSGS Subjects	Semester	CodeR_2016 CBCGS Subjects	Code	Semester	Equivalence /Alternate
ETS-301	Applied Mathematics III	III	Applied Mathematics III	ECC-301	III	Equivalence
ETC-302	Analog Electronics I	III	Electronic Devices and Circuits I	ECC-302	III	Equivalence
ETC-303	Digital Electronics	III	Digital System Design	ECC-303	III	Equivalence
ETC-304	Circuits and Transmission Lines	III	Circuit Theory and Networks	ECC-304	III	Equivalence
ETC-305	Electronic Instruments and Measurements	III	Electronic Instrumentation and Control	ECC-305	III	Equivalence
Semester IV Electronics and Telecommunication Engineering						
ETS-401	Applied Mathematics IV	IV	Applied Mathematics IV	ECC-401	IV	Equivalence
ETC-402	Analog Electronics II	IV	Electronic Devices and Circuits II	ECC-402	IV	Equivalence
ETC-403	Microprocessors and Peripherals	IV	Microprocessor & Peripherals Interfacing	ECC-501	V	Equivalence
ETC-404	Wave Theory and Propagation	IV	Electromagnetic Engineering	ECC-503	V	Equivalence
ETC-405	Signals and Systems	IV	Signals & Systems	ECC-404	IV	Equivalence
ETC-406	Control Systems	IV	Electronic Instrumentation and Control	ECC-305	III	Equivalence
Semester V Electronics and Telecommunication Engineering						
ETC-501	Microcontrollers and Applications	V	Microcontrollers & Applications	ECC-601	VI	Equivalence
ETC-502	Analog Communication	V	Principles of Communication Engineering	ECC-405	IV	Equivalence
ETC-503	Random Signal Analysis	V	Digital Communication	ECC-502	V	Alternate
ETC-504	RF Modeling and Antennas	V	Antenna & Radio Wave Propagation	ECC-603	VI	Equivalence
ETC-505	Integrated Circuits	V	Linear Integrated Circuits	ECC-403	IV	Equivalence
Semester VI Electronics and Telecommunication Engineering						
Code	R_2012 CBSGS Subjects	Semester	CodeR_2016 CBCGS Subjects	Code	Semester	Equivalence
ETC-601	Digital Communication	VI	Digital Communication	ECC-502	V	Equivalence
ETC-602	Discrete Time Signal Processing	VI	Discrete Time Signal Processing	ECC-504	V	Equivalence
ETC-603	Computer Communication and Telecom Networks	VI	Computer Communication Networks	ECC-602	VI	Equivalence
ETC-604	Television Engineering	VI	TV & Video Engineering	ECCDLO -5012	V	Equivalence
ETC-605	Operating Systems	VI	Operating Systems	CSC-405	IV	Equivalence
ETC-606	VLSI Design	VI	Digital VLSI Design	ECCDLO -6021	VI	Equivalence
Semester VII Electronics and Telecommunication Engineering						
ETC-701	Image and Video Processing	VII	Image Processing and Machine Vision	ECC-604	VI	Equivalence

ETC-702	Mobile Communication	VII	Mobile Communication System	ECC-702	VII	Equivalence
ETC-703	Optical Communication and Networks	VII	Optical Communication	ECC-703	VII	Equivalence
ETC-704	Microwave and Radar Engineering	VII	Microwave Engineering	ECC-701	VII	Equivalence
ETE-701	Data Compression and Encryption	VII	Data Compression and Encryption	ECCDLO-5014	V	Equivalence
ETE-702	Statistical Signal Processing	VII	Advanced Digital Signal Processing	ECCDLO-8042	VIII	Equivalence
ETE-703	Neural Network and Fuzzy Logic	VII	Neural Networks and Fuzzy Logic	ECCDLO-7031	VII	Equivalence
ETE-704	Analog and Mixed Signal VLSI	VII	CMOS Mixed Signal VLSI	ECCDLO-7034	VII	Equivalence
Semester VIII Electronics and Telecommunication Engineering						
ETC-801	Wireless Networks	VIII	Wireless Networks	ECC-802	VIII	Equivalence
ETC-802	Satellite communication and Networks	VIII	Satellite Communication	ECCDLO-8043	VIII	Equivalence
ETC-803	Internet and Voice Communication	VIII	Internet Communication Engineering	ECCDLO-7033	VII	Equivalence
ETE-801	Speech Processing	VIII	Audio Processing	ECCDLO-6024	VI	Alternate
ETE-802	Telecom Network Management	VIII	Network management in Telecommunication	ECCDLO-8044	VIII	Equivalence
ETE-803	Microwave Integrated Circuits	VIII	RF Design	ECC-801	VIII	Equivalence
ETE-804	UltraWideband Communication	VIII	Wireless Networks	ECC-802	VIII	Alternate

Electronics and Telecommunication Engineering: Subject Equivalence (Rev-2012 - Rev-2016)

Automobile Engineering: Equivalent / Alternate Subjects (Rev-2012 to Rev-2016)

Sr No	SCHEME R-2012 CBGS		SCHEME R-2016 CBCGS		
	Subject Code	Subject Name	Subject Code	Subject Name	Sem
SEM III					
1	AEC301	Applied Mathematics III	AEC301	Applied Mathematics III	III
2	AEC302	Thermodynamics	AEC302	Thermodynamics	III
3	AEC303	Strength of Materials	AEC303	Strength of Materials	III
4	AEC304	Production Process- I	AEC304	Production Process-I	III
SEM-IV					
1	AEC401	Applied Mathematics IV	AEC401	Applied Mathematics IV	IV
2	AEC402	Fluid Mechanics	AEC402	Fluid Mechanics	IV
3	AEC403	Theory of Machines- I	AEC405	Kinematics of Machinery	IV
4	AEC404	Production Process- II	AEC404	Production Process-II	IV
5	AEC405	Material Technology	AEC305	Material Technology	III
6	AEC406	Industrial Electronics	AEC403	Industrial Electronics	IV
SEM-V					
1	AEC501	Internal Combustion Engines	AEC501	Internal Combustion Engines	V
2	AEC502	Metrology and Quality Engineering	AEC502	Mechanical Measurements and Control	V
3	AEC503	Production Process-III	AEDLO5013	Design of Jigs and Fixtures	V
4	AEC504	Theory of Machines- II	AEC504	Automotive Systems	V
5	AEC505	Heat Transfer	AEC503	Heat Transfer	V
SEM-VI					
1	AEC601	Automotive Systems	AEC 504	Automotive Systems	V
2	AEC602	Machine Design I	AEC602	Machine Design I	VI
3	AEC603	Mechanical Vibrations	AEC604	Mechanical Vibrations	VI
4	AEC604	Thermal and Fluid Power Engineering	MEC803*	Power Engineering	VIII
5	AEC605	Operations Research	ILO7015	Operations Research	VII
6	AEC606	Finite Element Analysis	AEC603	Finite Element Analysis	VI
SEM-VII					
1	AEC701	Chassis and Body Engineering	AEC601	Chassis and Body Engineering	VI
2	AEC702	CAD/CAM/CAE	AEC702	CAD/CAM/CAE	VII
3	AEC703	Automotive Design	AEC 701	Automotive Design	VII
4	AEC704	Product Design and Development	AEDLO8043	Product Design and Development	VIII
5	AEE7011	Power Plant Engineering	MEDLO8041*	Power Plant Engineering	VIII
	AEE7012	Supply Chain Management	-------	--------	---------
	AEE7013	Tribology	-------	----------	---------

	AEE7014	Computational Fluid Dynamics	AEDLO7034	Computational Fluid Dynamics	VII
	AEE7015	Automotive Embedded Systems	AEDLO7032	Automotive Embedded Systems	VII
	AEE7016	Industrial Robotics	AEDLO6022	Robotics	VI
	AEE7017	Transportation Management and Motor Industry	AEDLO8044	Transportation Management and Motor Industry	VIII
6	AEP701	Project- I	AEP701	Project I	VII
	SEM-VIII				
1	AEC801	Autotronics	AEC703	Autotronics	VII
2	AEC802	Vehicle Dynamics	AEC802	Vehicle Dynamics	VIII
3	AEC803	Vehicle Maintenance	AEC801	Vehicle Maintenance	VIII
4	AEE8021	Noise Vibrations & Harshness	AEDLO7031	Automotive Noise Vibrations & Harshness	VII
	AEE8022	Vehicle Safety	AEC803	Vehicle Safety	VIII
	AEE8023	World Class Manufacturing	------------	-----------	
	AEE8024	Knowledge Management	----------	-----------	
	AEE8025	Project Management	ILO8021	Project Management	VIII
	AEE8026	Artificial Intelligence	-----------	------------	
	AEE8027	Virtual Reality	-----------	--------------	
5	AEP801	Project- II	AEP801	Project II	VIII

*From Mechanical Engineering R 16 syllabus

Production Engineering: Equivalent / Alternate Subjects (Rev-2012 to Rev-2016)

Sr #	SCHEME R-2012 CBGS		SCHEME R-2016 CBCGS			
	Subject Code	Subject Name	Subject Code	Subject Name	Sem	Branch
SEM III						
1	PEC301	Applied Mathematics-III	PEC301	Applied Mathematics - III	III	Production
2	PEC302	Strength of Materials	PEC305	Mechanics of Solids	III	Production
3	PEC303	Manufacturing Engineering-I	PEC303	Manufacturing Engineering-I	III	Production
4	PEC304	Fluid Mechanics and Fluid Power	PEC404	Fluid & Thermal Engineering	IV	Production
5	PEC305	Computer Aided Machine Drawing	PEL301	Computer Aided Machine Drawing Laboratory	III	Production
6	PEC306	Data Base Information Retrieval System	PEL302	Data Base Information Retrieval Laboratory	III	Production
7	PEC307	Workshop Practice-III	PEL304	Manufacturing Process – I Laboratory	III	Production
SEM-IV						
1	PEC401	Applied Mathematics - IV	PEC401	Applied Mathematics - IV	IV	Production
2	PEC402	Theory of Machines	PEC402	Dynamics of Machines	IV	Production
3	PEC403	Manufacturing Engineering-II	PEC403	Manufacturing Engineering-II	IV	Production
4	PEC404	Electrical and Electronics Engineering	PEC405	Electrical & Electronics Engineering	VI	Production
5	PEC405	Applied Thermodynamics	PEC302	Applied Thermodynamics	III	Production
6	PEC406	Materials Technology	PEC304	Material Science and Engineering	III	Production
7	PEC406	Workshop Practice-IV	PEL404	Manufacturing Process – II Laboratory	IV	Production
SEM-V						
1	PEC501	Computer Aided Design and Finite Element Analysis	PEDLO5012	Finite Element Analysis	V	Production
2	PEC502	Metrology and Instrumentation	PEC505	Metrology & Quality Engineering	V	Production
3	PEC503	Design of Jigs and Fixtures	MEDLO5013	Design of Jigs and Fixtures	V	Mechanical
4	PEC504	Machining Science and Technology	PEC601	Machining Science and Technology	VI	Production
5	PEC505	Engineering Design	PEC503	Machine Design-I	V	Production
6	PEC506	Thermal Engineering	PEDLO5011	Internal Combustion Engines	V	Production
7	PEC506	Business Communication and Ethics	PEL505	Business Communication & Ethics	V	Production
SEM-VI						
1	PEC601	Process Engineering and Tooling	PEC602	Process Engineering and Tooling	VI	Production

2	PEC602	Design of Press Tool and Metal Joining	PEC603	Production Tooling	VI	Production
3	PEC603	Operations Research	PEC502	Operations Research	V	Production
4	PEC604	Mould and Metal Forming Technology	PEC501	Design of Molds & Metal Forming Tools	V	Production
5	PEC605	Production and Operations Management	PEC605	Production and Operation Management	VI	Production
6	PEC606	Machine Tool Design	PEC604	Machine Design – II	VI	Production
SEM-VII						
1	PEC701	Industrial Training and Project I	EEC701	Industrial Training and Project	VII	Production
SEM-VIII						
1	PEC801	Automation and Control Engineering	PEC801	Fluid Power & Automation	VIII	Production
2	PEC802	Computer Aided Manufacturing	PEC504	CAD/CAM/CIM	V	Production
3	PEC803	Engineering Economics, Finance, Accounting and Costing	PEC803	Economics, Finance, Accounting & Costing	VIII	Production
4	PEC804	Total Quality Strategy	PEC802	Industrial Engineering and Human Resource Management	VIII	Production
5	PEC805	Industrial Relations and Human Resource Management	ILO8024	Human Resource Management	VIII	Production
6	PEE8011	Sales and Marketing Management	PEDLO8011	Product Design and Industrial Marketing	VIII	Production
7	PEE8012	Logistics and Supply Chain Management	PEDLO8013	Logistics and Supply Chain Management	VIII	Production
8	PEE8013	Plastics Engineering	PEDLO5013	Plastic Engineering	V	Production
9	PEE8014	Entrepreneurship Development	ILO8023	Entrepreneurship Development and Management	VIII	Production
11	PEE8015	World Class Manufacturing	PEDLO8012	World Class Manufacturing	VIII	Production
12	PEE8016	Mechatronics	MEDLO6021	Mechatronics	VI	Mechanical
13	PEE8017	Industrial Robotics	PEDLO6014	Industrial Robotics	VI	Production
14	PEE8019	Sustainable Engineering	PEDLO5015	Sustainable Manufacturing	V	Production
15	PEE80110	Maintenance Engineering	PEDLO6013	Reliability Engineering	VI	Production

Instrumentation Engineering: - Equivalent / Alternate Subjects (Rev-2012 to Rev-2016)					
SEM III					
Subject Code	SCHEME R-2012 CBGS	Subject	SCHEME R-2016 CBCGS	SEM	Branch
ISC301	Applied Mathematics –III	ISC301	Applied Mathematics –III	III	Instrumentation
ISC302	Electrical Network Analysis	ISC305	Electrical Networks and	III	Instrumentation
ISC303	Analog Electronics	ISC302	Analog Electronics	III	Instrumentation
ISC304	Digital Electronics	ISC304	Digital Electronics	III	Instrumentation
ISC305	Transducers – I	ISC303	Transducers – I	III	Instrumentation
ISC306	Object Oriented Programming and Methodology	ISL301	Object Oriented Programming and Methodology	III	Instrumentation
SEM-IV					
Subject Code	SCHEME R-2012 CBGS	Subject	SCHEME R-2016 CBCGS	SEM	Branch
ISC401	Applied Mathematics – IV	ISC401	Applied Mathematics – IV	IV	Instrumentation
ISC402	Feedback Control system	ISC403	Feedback Control system	IV	Instrumentation
ISC403	Electrical Technology and	ISC305	Electrical Networks and	III	Instrumentation
ISC404	Communication System	ISC602	Industrial Data	VI	Instrumentation
ISC405	Transducers –II	ISC402	Transducers –II	IV	Instrumentation
ISC406	Application Software Practice	ISL401	Application Software Practice	IV	Instrumentation
SEM-V					
Subject Code	SCHEME R-2012 CBGS	Subject	SCHEME R-2016 CBCGS	SEM	Branch
ISC501	Signals and Systems	ISC501	Signals and Systems	V	Instrumentation
ISC502	Applications of Microcontroller -I	ISC502	Applications of Microcontroller	V	Instrumentation
ISC503	Control System Design	ISC503	Control System Design	V	Instrumentation

ISC504	Signal Conditioning Circuit	ISC405	Signal Conditioning	IV	Instrumentation
ISC505	Control system components	ISC504	Control System Components	V	Instrumentation
ISC506	Business Communication and Ethics	ISL501	Business Communication and Ethics	V	Instrumentation

SEM-VI					
Subject	**SCHEME R-2012 CBGS**	**Subject**	**SCHEME R-2016**	**SE**	**Branch**
ISC601	Process Instrumentation	ISC601	Process Instrumentation	VI	Instrumentation
ISC602	Power Electronics and Drives	ISC603	Electrical machines and	VI	Instrumentation
ISC603	Digital Signal Processing	ISC604	Digital Signal Processing	VI	Instrumentation
ISC604	Applications of Microcontroller -II	ISDLO7033	Advanced Microcontroller Systems	VII	Instrumentation
ISC605	Industrial Data Communication	ISC602	Industrial Data Communication	VI	Instrumentation
ISC606	Analytical Instrumentation	ISC404	Analytical Instrumentation	IV	Instrumentation

SEM-VII					
Subject Code	**SCHEME R-2012 CBGS**	**Subject Code**	**SCHEME R-2016 CBCGS**	**SEM**	**Branch**
ISC701	Industrial Process Control	ISC701	Industrial Process Control	VII	Instrumentation
ISC702	Biomedical Instrumentation	ISC702	Biomedical	VII	Instrumentation
ISC703	Advanced Control Systems	ISC605	Advanced Control System	VI	Instrumentation
ISC704	Process Automation	ISC703	Industrial Automation	VII	Instrumentation
ISE7051	Advanced Embedded System	ISDLO7033	Advanced Microcontroller Systems	VII	Instrumentation
ISE7052	Image Processing				
ISE7053	Functional Safety	ISDLO8045	Functional Safety	VIII	Instrumentation
ISE7054	Process Modeling &	ISDLO5012	Optimization Techniques	V	Instrumentation
ISE7055	Wireless communication	ISDLO8043	Internet of Things (IOT)	VIII	Instrumentation

SEM-VIII					
Subject Code	**SCHEME R-2012 CBGS**	**Subject Code**	**SCHEME R-2016 CBCGS**	**SEM**	**Branch**
ISC801	Digital Control System	ISDLO7032	Digital Control System		Instrumentation
ISC802	Instrumentation Project Documentation and Execution	ISC801	Instrumentation Project Documentation and Execution	VIII	Instrumentation
ISC803	Instrument and System Design	ISC802	Instrument and System design	VIII	Instrumentation
ISE8041	Nuclear Instrumentation	ISDL06024	Nuclear Instrumentation	VI	Instrumentation
ISE8042	Power Plant Instrumentation	ISDLO8044	Power Plant Instrumentation	VIII	Instrumentation
ISE8043	Optimal Control theory	ISDLO8042	Optimal Control System	VIII	Instrumentation
ISE8044	Nano Technology	ISDLO5011	Advanced Sensors	V	Instrumentation
ISE8045	Fiber Optic Instrumentation	ISDLO5014	Fiber Optic Instrumentation	V	Instrumentation

Biomedical Engineering: Equivalent / Alternate Subjects (Rev-2012 to Rev-2016)

Sr.	Subject	Scheme R-2012 CBGS	Subject	Scheme R-2016 CBCGS	Sem	Branch
SEM III						
1	SEBM301	Applied Mathematics-III	BMC301	Applied Mathematics III	III	Biomedical
2	SEBM302	Electronic Circuits and	BMC304	Electronic Circuit Analysis	III	Biomedical
3	SEBM303	Electrical Network Analysis	BMC303	Electrical Network Analysis	III	Biomedical
4	SEBM304	Human Anatomy and	BMC302	Basics of Human Physiology	III	Biomedical
5	SEBM305	Biomaterials	BMC305	Biomaterials, Prosthetics and	III	Biomedical
SEM IV						
Sr.	Subject	Scheme R-2012 CBGS	Subject	Scheme R-2016 CBCGS	Sem	Branch
6	SEBM401	Applied Mathematics-IV	BMC401	Applied Mathematics IV	IV	Biomedical
7	SEBM402	Electronic Circuits and	BMC403	Linear Integrated Circuits	IV	Biomedical
8	SEBM403	Transducers and Sensors	BMC402	Biomedical Transducers and	IV	Biomedical
9	SEBM404	Logic Circuits	BMC404	Digital Electronics	IV	Biomedical
10	SEBM405	Signals and Systems	BMC406	Signals and Control Systems	IV	Biomedical
11	SEBM406	Electronic Instruments and	BMC406	Signals and Control Systems	IV	Biomedical
SEM V						
Sr.	Subject	Scheme R-2012 CBGS	Subject	Scheme R-2016 CBCGS	Sem	Branch
12	BMC501	Biomedical	BMC501	Diagnostic & Therapeutic	V	Biomedical
13	BMC502	Microprocessors	BMC602	Microprocessors and	VI	Biomedical
14	BMC503	Analog and Digital Circuits	BMC502	Analog and Digital Circuit	V	Biomedical
15	BMC504	Biomedical Digital Signal	BMC504	Biomedical	V	Biomedical
16	BMC505	Principles of	BMC503	Principles of Communication	V	Biomedical
SEM VI						
Sr.	Subject	Scheme R-2012 CBGS	Subject	Scheme R-2016 CBCGS	Sem	Branch
17	BMC601	Biomedical	BMC601	Biomedical Monitoring	VI	Biomedical
18	BMC602	Biostatistics	BMDLO50	Biostatistics	V	Biomedical
19	BMC603	Biological Modeling and	BMDLO60	Biological Modelling and	VI	Biomedical
20	BMC604	Microcontrollers and	BMC602	Microprocessors and	VI	Biomedical
21	BMC605	Medical Imaging –I	BMC604	Medical Imaging-I	VI	Biomedical
22	BMC606	Digital Image Processing	BMC603	Digital Image Processing	VI	Biomedical
SEM VII						
Sr.	Subject	Scheme R-2012 CBGS	Subject	Scheme R-2016 CBCGS	Sem	Branch
23	BMC701	Biomedical	BMC701	Life Saving and Surgical	VII	Biomedical
24	BMC702	Medical Imaging –II	BMC703	Medical Imaging-II	VII	Biomedical
25	BMC703	Biomechanics Prosthesis	BMC305	Biomaterials, Prosthetics and	III	Biomedical
26	BMC704	Very Large Scale	BMC702	Basics of VLSI	VII	Biomedical
27	BMC705	Networking and	BMDLO70	Networking and Information	VII	Biomedical
28	BMP706	Project Stage – I	BML704	Project Stage – I	VII	Biomedical
SEM VIII						
Sr.	Subject	Scheme R-2012 CBGS	Subject	Scheme R-2016 CBCGS	Sem	Branch
29	BMC801	Nuclear Medicine	BMDLO80	Nuclear Medicine	VIII	Biomedical
30	BMC802	Biomedical Microsystems	BMC801	Biomedical Microsystems	VIII	Biomedical
31	BMC803	Hospital Management	BMC802	Hospital Management	VIII	Biomedical
32	BME8012	Robotics in Medicine	BMDLO80	Robotics in Medicine	VIII	Biomedical
33	BME8013	Health care Informatics	BMDLO80	Health Care Informatics	VIII	Biomedical
34	BMP805	Project Stage – II	BML803	Project Stage – II	VIII	Biomedical

Chemical Engineering: Equivalent / Alternate Subjects (Rev-2012 to Rev-2016)

Sr. No.	2012		2016	
	Subject	Subject Name	Subject	Subject Name
	SEM III			
1	CHC301	Applied Mathematics – III	CHC301	Applied Mathematics – III (Sem III)
2	CHC302	Engineering Chemistry- I	CHC302	Engineering Chemistry- I (Sem III)
3	CHC303	Fluid Flow	CHC303	Fluid Flow Operation (Sem III)
4	CHC304	Computer Programming and	CHC501	Computer Programming and Numerical
5	CHC305	Process Calculation	CHC305	Process Calculation (Sem III)
6	CHC306	Chemical Engineering Economics	CHC406	Chemical Engineering Economics (Sem IV)
	SEM IV			
7	CHC401	Applied Mathematics – IV	CHC401	Applied Mathematics – IV (Sem IV)
8	CHC402	Engineering Chemistry-II	CHC402	Engineering Chemistry-II (Sem IV)
9	CHC403	Chemical Engineering	CHC304	Chemical Engineering Thermodynamics-I
10	CHC404	Material and Science and	CHDE5013	Advanced Material Sciences (Sem V)(Dept
11	CHC405	Mechanical Equipment Design	CHC405	Mechanical Equipment Design (Sem IV)
12	CHC406	Solid Fluid Mechanical Operation	CHC404	Solid Fluid Mechanical Operation
	SEM V			
13	CHC501	Chemical Engineering	CHC403	Chemical Engineering Thermodynamics-II
14	CHC502	Mass Transfer Operation-I	CHC502	Mass Transfer Operation-I (Sem V)
15	CHC503	Heat Transfer Operation-I	CHC503	Heat Transfer Operation (Sem V)
16	CHC504	Chemical Reaction Engineering-I	CHC504	Chemical Reaction Engineering-I (Sem V)
17	CHC505	Chemical Technology	CHC306	Chemical Technology (Sem III)
18	CHC506	Business Communication and	CHC505	Business Communication and Ethics (Sem
	SEM VI			
19	CHC601	Instrumentation	CHDE5014	Instrumentation (Sem V)(Dept level
20	CHC602	Mass Transfer Operation-II	CHC602	Mass Transfer Operation-II (Sem VI)
21	CHC603	Heat Transfer Operation-II	CHC503	Heat Transfer Operation (Sem V)
22	CHC604	Chemical Reaction Engineering-II	CHC604	Chemical Reaction Engineering-II (Sem VI)
23	CHC605	Plant Engineering	CHC605	Plant Engineering and Industrial Safety
24	CHE606	Elective-I –Operation Research	CHDE6022	Operation Research (Sem VI) (Department
25		Elective-I –Advanced Material	CHDE5013	Advanced Material Sciences (Sem V)(Dept
26		Elective-I –Computational Fluid	CHDE6021	Computational Fluid Dynamics (Sem
	SEM VII			
27	CHC701	Process Equipment Design (PED)	CHC701	Process Equipment Design (Sem VII)
28	CHC702	Process Engineering	CHC702	Process Engineering (Sem VII)
29	CHC703	Process Dynamics and Control	CHC703	Process Dynamics and Control (Sem VII)
30	CHE 704	Elective-High Performance	CHDE7032	Industrial organization and Management
31		Elective- Polymer Technology	CHDE8044	Polymer Technology (Sem VIII) (Dept Level

32		Elective-Petroleum Refining	CHDE7033	Petroleum Refining Technology (Sem VII)
33		Elective-Advanced Process	CHC801	Modeling, Simulation and Optimization
34	CHP705	Project-A	CHP701	Project-A (Sem VII)
35	CHS 706	Seminar	CHS 701	Seminar (Sem VII)
36	CHC801	Modeling, Simulation &	CHC801	Modeling, Simulation & Optimization
37	CHC802	Project Engineering &	CHC802	Project Engineering & Entrepreneurship
38	CHC 803	Environmental Engineering (EE)	CHC601	Environmental Engineering (Sem VI)
39	CHC804	Energy System Design	CHC803	Energy System Design (Sem VIII)
40		Elective III: Total Quality	CHDE8042	Total Quality Management (sem VIII)(Dept
41		Elective III: Advanced Separation	CHDE8043	Advanced Separation Technology (sem
42	CHE805	Elective III: Biotechnology	CHDE6023	Biotechnology (Sem VI) (Dept level
43		Elective III: Nanotechnology	CHDE5013	Advanced Material sciences(Sem V)(Dept
44		Elective III: Advanced Process	CHDE8041	Advanced Process Control(sem VIII)(Dept
45		Elective III: Advanced Transport	CHC603	Transport Phenomena (Sem VI)
46	CHP806	Project-B	CHP801	Project-B (Sem VIII)

Biotechnology Engineering: Equivalent / Alternate Subjects (Rev-2012 to Rev-2016)

Sr. No	2012		2016	
	Subject	Subject Name	Subject Code	Subject Name
Sem III				
1	BTC301	Applied Mathematics – III	BTC301	Applied Mathematics - III
2	BTC302	Microbiology	BTC302	Microbiology
3	BTC303	Cell Biology	BTC303	Cell Biology
4	BTC304	Biochemistry	BTC304	Biochemistry
5	BTC305	Unit Operations-I	BTC305	Unit Operations-I
6	BTC306	Process Calculations	BTC306	Process Calculations
7	BTL307	Microbiology Lab	BTL301	Microbiology Lab
8	BTL308	Biochemistry Lab	BTL302	Biochemistry Lab
9	BTL309	Unit Operations –I Lab	BTL303	Unit Operations –I Lab
Sem IV				
10	BTC401	Applied Mathematics – IV	BTC401	Applied Mathematics – IV
11	BTC402	Molecular Genetics	BTC402	Molecular Genetics
12	BTC403	Fermentation Technology	BTC403	Fermentation Technology
13	BTC404	Analytical Methods in Biotechnology	BTC404	Analytical Methods in
14	BTC405	Immunology and Immunotechnology	BTC405	Immunology and
15	BTC406	Unit Operations –II	BTC401	Unit Operations –II
16	BTL407	Fermentation TechnologY – Lab	BTL402	Fermentation Technology – Lab
17	BTL408	Analytical Methods in Biotechnology Lab	BTL403	Analytical Methods in
18	BTL409	Unit Operations –II – Lab	BTL409	Unit Operations –II – Lab
Sem V				
19	BTC501	Bioinformatics – I	BTC501	Bioinformatics
20	BTC502	Genetic Engineering	BTC502	Genetic Engineering
21	BTC503	Biophysics	BTE5012	Biophysics
22	BTC504	Thermodynamics & Biochemical	BTC503	Thermodynamics & Biochemical
23	BTC505	Bioreactor Analysis & technology	BTC504	Bioreactor Analysis &
24	BTC506	Business Communication & Ethics	BTC505	Business Communication &
25	BTL507	Lab-I	BTL503	Lab-I
26	BTL508	Lab-II	BTL502	Genetic Engineering -Lab
Sem VI				
27	BTC601	Bioinformatics – II	BTE8044	Advanced Bioinformatics
28	BTC602	Cell & Tissue Culture	BTC602	Cell & Tissue Culture
29	BTC603	Enzyme Engineering	BTC603	Enzyme Engineering

30	BTC604	IPR, Bioethics & Bio safety	BTC604	IPR, Bioethics & Bio safety
31	BTC605	Process Control & Instrumentation	BTC605	Process Control &
32	BTE606.a	Research Methodology & Scientific	ILO8026	Research Methodology
33	BTE606.b	Stem Cell Biology	BTE7031	Stem Cell & Tissue Engineering
34	BTE606.c	Good Lab Practices (GLP) & Process		
35	BTL607	Lab – III PTC	BTL601	Lab – II
36	BTL608	Lab – IV EE	BTL602	Lab - III
37	BTL609	Lab - V Bioinf	BTL501	Bioinformatics - Lab
		Sem VII		
38	BTC701	Bioseparation & Downstream Processing	BTC701	Bioseparation & Downstream
39	BTC702	Bioprocess Modelling & Simulation	BTC702	Bioprocess Modelling &
40	BTS703	Seminar		
41	BTE704.a	Food Biotechnology	BTC601	Food Technology
42	BTE704.b	Pharmaceutical Technology	BTE5014	Pharmaceutical Technology
43	BTE704.c	Nanotechnology	BTE7034	Nanotechnology
44	BTL706	Lab-VI	BTL701	Lab - IV
45	BTL707	Lab – VII	BTL702	Lab – V
46	BTP705	Project A	BTP701	Project A
		Sem VIII		
47	BTC801	Environmental Biotechnology	BTC801	Environmental Biotechnology
48	BTC802	Bioseparation & Downstream Processing	BTC802	Bioseparation & Downstream
49	BTC803	Bioprocess Plant & Equipment Design	BTC803	Bioprocess Plant & Equipment
50	BTE804.a	Non-Conventional Sources of Energy	BTE8041	Non-Conventional Sources of
51	BTE804.b	Biosensors & Diagnostics	BTE5011	Biosensors & Diagnostics
52	BTE804.c	Protein Engineering	BTE6022	Protein Engineering
53	BTE804.d	Agriculture Biotechnology	BTC703	Agriculture Biotechnology
54	BTP805	Project –B	BTP801	Project –B
55	BTL806	Lab –VIII EBT	BTL801	Lab -VI
56	BTL807	Lab – IX BD	BTL802	Lab – VII

Printing & Packaging Technology: Equivalent / Alternate Subjects (Rev-2012 to Rev-2016)

Sr. No.	SCHEME R-2012 CBGS		SCHEME R-2016 CBCGS		
	Subject Code	Subject Name	Subject Code	Subject Name	Sem
SEM III					
1	PPC301	Applied Mathematics - III	PPC301	Applied Mathematics – III	III
2	PPC302	Principles of Packaging Technology	PPC302	Packaging Introduction & Concepts	III
3	PPC303	Introduction to Printing Technology	PPC303	Introduction to Printing Technology	III
4	PPC304	Paper based Packaging Materials	PPC304	Paper based Packaging Materials	III
5	PPC306	Material Science & Technology	PPC305	Glass, Metal & Textile based Packaging Materials	III
SEM IV					
1	PPC401	Plastics in Packaging	PPC401	Plastics in Packaging	IV
2	PPC402	Glass, Metal & Textile based Packaging Materials	PPC305	Glass, Metal & Textile based Packaging Materials	III
3	PPC403	Digital Imaging & Colour Management	PPC604	Colour Management	VI
4	PPC404	Offset Printing	PPC404	Offset Printing	IV
5	PPC405	Digital Electronics & Microprocessors	PPC405	Digital Electronics & Microcontrollers	IV
SEM V					
1	PPC501	Plastics Processing & Conversion Technologies	PPC501	Plastics Processing & Conversion	V
2	PPC502	Gravure Printing	PPC502	Gravure Printing	V
3	PPC503	Ancillary Packaging Materials	PPC402	Ancillary Packaging Materials	IV
4	PPC504	Theory of Machines & Design	PPC503	Theory of Machines & Design	V
5	PPC505	Instrumentation & Process Control	PPC504	Instrumentation & Process Control	V
SEM VI					
1	PPC601	Packaging Machineries & Systems	PPC601	Packaging Machineries & Systems	VI
2	PPC602	Food & Pharmaceutical Packaging	PPC602	Food & Pharmaceutical Packaging	VI
3	PPC603	Industrial Products Packaging	PPC505	Industrial Products Packaging	V
4	PPC604	Flexographic Printing	PPC603	Flexographic Printing	VI
5	PPE601*	Elective - I	PPDE601X	Department Elective – I	VI
SEM VII					
1	PPC701	Sustainable Packaging	PPC701	Laws, Regulations & Sustainability in Packaging	VII
2	PPC702	Packaging Laws & Regulations	PPC701	Laws, Regulations & Sustainability in Packaging	VII
3	PPC703	Packaging Distribution & Logistics	PPC702	Packaging Distribution & Logistics	VII
4	PPC704	Total Quality Management & Economics	PPC704	Total Quality Management	VII
5	PPC705	Project Management & Entrepreneurship	PPC705	Project Management & Entrepreneurship	VII
6	PPE70*	Elective – II	PPDE701X	Department Elective – II	VII
SEM VIII					
1	PPI801	Professional Internship	PPC801	Industrial Training & Project	VIII
2	PPP801	Project	PPC801	Industrial Training & Project	VIII