

**CENTURION UNIVERSITY OF TECHNOLOGY &
MANAGEMENT:: PARALAKHEMUNDI
ODISHA**

**CHOICE BEASED CREDIT SYSTEM
COURSE STRUCTURE & SYLLABUS**

[With effect from 2016-17 Admitted Batch]



Centurion
UNIVERSITY

School of Engineering & Technology

2016

Credit distribution in CBCS Structure

<i>Basket</i>	<i>Courses</i>	<i>%</i>	<i>Credits</i>
<i>I</i>	<i>Foundation Courses in Science</i>	<i>10</i>	<i>18</i>
<i>II</i>	<i>Foundation Courses in Humanities & Management</i>	<i>10</i>	<i>18</i>
<i>III</i>	<i>Foundation Courses in Engineering</i>	<i>15</i>	<i>27</i>
<i>IV</i>	<i>Core Courses in Engineering</i>	<i>25</i>	<i>45</i>
<i>V</i>	<i>Discipline Centric Electives</i>	<i>40</i>	<i>72</i>
<i>Total Credits</i>			<i>180</i>

BASKET – I (Basic Sciences)**Theory Courses**

Course Code	Course Title	Course Type	Credits	Prerequisite	Department Offering
<i>FCBS 0101</i>	<i>Environmental Science</i>	<i>Theory</i>	<i>3</i>	<i>Nil</i>	<i>Chemistry</i>
<i>FCBS 0102</i>	<i>Differential Equations</i>	<i>Theory</i>	<i>3</i>	<i>Nil</i>	<i>Mathematics</i>
<i>FCBS 0103</i>	<i>Linear Algebra & Vector Calculus</i>	<i>Theory</i>	<i>3</i>	<i>Nil</i>	<i>Mathematics</i>
<i>FCBS 0104</i>	<i>Integral Transform</i>	<i>Theory</i>	<i>3</i>	<i>Nil</i>	<i>Mathematics</i>
<i>FCBS 0105</i>	<i>Complex Analysis</i>	<i>Theory</i>	<i>3</i>	<i>Nil</i>	<i>Mathematics</i>
<i>FCBS0106</i>	<i>Discrete Mathematics</i>	<i>Theory</i>	<i>3</i>	<i>Nil</i>	<i>Mathematics</i>
<i>FCBS0401</i>	<i>Applied Analytical Chemistry</i>	<i>Theory + Practice</i>	<i>3</i>	<i>Nil</i>	<i>Chemistry</i>
<i>FCBS0402</i>	<i>Industrial Chemistry</i>	<i>Theory + Practice</i>	<i>3</i>	<i>Nil</i>	<i>Chemistry</i>
<i>FCBS0403</i>	<i>Applied Engineering Materials</i>	<i>Theory + Practice</i>	<i>3</i>	<i>Nil</i>	<i>Chemistry</i>
<i>FCBS0404</i>	<i>Electricity and Magnetism</i>	<i>Theory + Practice</i>	<i>4</i>	<i>Nil</i>	<i>Physics</i>
<i>FCBS0405</i>	<i>Properties of Matter</i>	<i>Theory + Practice</i>	<i>4</i>	<i>Nil</i>	<i>Physics</i>
<i>FCBS0406</i>	<i>Optics and Optical Fibre</i>	<i>Theory + Practice</i>	<i>4</i>	<i>Nil</i>	<i>Physics</i>

BASKET – II (Humanities & Management)
Theory Courses

<i>Course Code</i>	<i>Course Title</i>	<i>Course Type</i>	<i>Credits</i>	<i>Prerequisite</i>	<i>Department Offering</i>
<i>FCHU0101</i>	<i>Introduction to Communication Skill</i>	<i>Theory</i>	<i>2</i>	<i>Nil</i>	<i>Humanities</i>
<i>FCHU0102</i>	<i>Introduction to Public Speaking</i>	<i>Theory</i>	<i>2</i>	<i>Nil</i>	<i>Humanities</i>
<i>FCHU0103</i>	<i>Reasoning and Thinking – I</i>	<i>Theory</i>	<i>2</i>	<i>NIL</i>	<i>Humanities</i>
<i>FCHU0104</i>	<i>Reasoning and Thinking – II</i>	<i>Theory</i>	<i>2</i>	<i>FCHU0103 Reasoning and Thinking – I</i>	<i>Humanities</i>
<i>FCHU0105</i>	<i>Employability Skills</i>	<i>Theory</i>	<i>2</i>	<i>Nil</i>	<i>Humanities</i>
<i>FCHU0106</i>	<i>Professional skills</i>	<i>Theory</i>	<i>2</i>	<i>Nil</i>	<i>Humanities</i>
<i>FCMG0101</i>	<i>Economics</i>	<i>Theory</i>	<i>2</i>	<i>Nil</i>	<i>Management</i>
<i>FCMG0102</i>	<i>Accounting & Finance</i>	<i>Theory</i>	<i>2</i>	<i>Nil</i>	<i>Management</i>
<i>FCMG0103</i>	<i>Management Processes and OB</i>	<i>Theory</i>	<i>2</i>	<i>Nil</i>	<i>Management</i>
<i>FCMG0104</i>	<i>Production and Operation Management</i>	<i>Theory</i>	<i>2</i>	<i>Nil</i>	<i>Management</i>
<i>FCMG0105</i>	<i>Marketing Management</i>	<i>Theory</i>	<i>2</i>	<i>Nil</i>	<i>Management</i>
<i>FCMG0108</i>	<i>Introduction to Research</i>	<i>Theory</i>	<i>2</i>	<i>Nil</i>	<i>Management</i>
<i>FCMG0113</i>	<i>Indian Society and Culture</i>	<i>Theory</i>	<i>2</i>	<i>Nil</i>	<i>Management</i>

Practice Courses

Course Code	Course Title	Course Type	Credits	Prerequisite	Department Offering
<i>FCMG0201</i>	<i>Disaster Management</i>	<i>Practice</i>	<i>2</i>	<i>Nil</i>	<i>Management</i>
<i>FCHU0201</i>	<i>Communicative Practice Laboratory -1</i>	<i>Practice</i>	<i>2</i>	<i>Nil</i>	<i>Humanities</i>
<i>FCHU0202</i>	<i>Communicative Practice Laboratory -2</i>	<i>Practice</i>	<i>2</i>	<i>Nil</i>	<i>Humanities</i>
<i>FCHU0203</i>	<i>English for Competition (GRE/TOEFL/IELTS)</i>	<i>Practice</i>	<i>2</i>	<i>Nil</i>	<i>Humanities</i>
<i>FCHU0204</i>	<i>Personality Development</i>	<i>Practice</i>	<i>2</i>	<i>Nil</i>	<i>Humanities</i>
<i>FCHU0205</i>	<i>Career Communication</i>	<i>Practice</i>	<i>2</i>	<i>Nil</i>	<i>Humanities</i>
<i>FCHU0206</i>	<i>Seminar and Technical Writing</i>	<i>Practice</i>	<i>2</i>	<i>Nil</i>	<i>Humanities</i>
<i>FCHU0207</i>	<i>IT Enabled Communication</i>	<i>Practice</i>	<i>2</i>	<i>Nil</i>	<i>Humanities</i>
<i>FCHU0208</i>	<i>Professional Etiquette</i>	<i>Practice</i>	<i>2</i>	<i>Nil</i>	<i>Humanities</i>
<i>FCHU0209</i>	<i>Creative Writing</i>	<i>Practice</i>	<i>2</i>	<i>Nil</i>	<i>Humanities</i>
<i>FCHU0210</i>	<i>Life Sills Development (LSD) - I</i>	<i>Practice</i>	<i>2</i>	<i>Nil</i>	<i>Humanities</i>
<i>FCHU0211</i>	<i>Life Sills Development (LSD) - II</i>	<i>Practice</i>	<i>2</i>	<i>Nil</i>	<i>Humanities</i>
<i>FCHU0212</i>	<i>Life Sills Development (LSD) - III</i>	<i>Practice</i>	<i>2</i>	<i>Nil</i>	<i>Humanities</i>

Theory cum Practice Courses

Course Code	Course Title	Course Type	Credits	Prerequisite	Department Offering
<i>FCHU0405</i>	<i>Foundations of English Communication</i>	<i>Theory + Practice</i>	<i>2</i>	<i>Nil</i>	<i>Humanities</i>
<i>FCHU0406</i>	<i>Business Communication</i>	<i>Theory + Practice</i>	<i>2</i>	<i>Nil</i>	<i>Humanities</i>

Project cum Practice Courses

Course Code	Course Title	Course Type	Credits	Prerequisite	Department Offering
<i>FCHU0601</i>	<i>Corporate Readiness Laboratory</i>	<i>Project + Practice</i>	<i>2</i>	<i>Nil</i>	<i>Humanities</i>

BASKET - III (Engineering)**Theory Courses**

Course Code	Course Title	Course Type	Credits	Prerequisite	Department offering
FCEN0101	Chemical Process Calculations	Theory	3	Nil	Chemical
FCEN0102	Basic Electronics	Theory	3	Nil	ECE
FCEN0103	Signals & Systems	Theory	3	Nil	ECE
FCEN0104	Digital Electronic Circuits	Theory	3	Nil	ECE
FCEN0105	Basic Electrical Engineering	Theory	3	Nil	EEE
FCEN0106	Electrical Machines - I	Theory	3	FCEN0105 Basic Electrical Engineering	EEE
FCEN 0107	Analog and Digital Electronics	Theory	3	FCEN0102 Basic Electronics	EEE
FCEN0108	Workshop Technology	Theory	3	Nil	Mechanical
FCEN0109	Engineering Mechanics	Theory	3	Nil	Mechanical
FCEN0110	Thermal Engineering	Theory	3	Nil	Mechanical
FCEN0111	Earth System Science	Theory	3	Nil	Mining
FCEN0112	Introduction to Mining	Theory	3	Nil	Mining
FCEN0113	Mine Development	Theory	3	Nil	Mining
FCEN0114	Mine Surveying I	Theory	3	Nil	Mining
FCEN0115	Introduction to Biotechnology	Theory	3	Nil	Biotech
FCEN0116	Introduction to Biophysics	Theory	3	Nil	Biotech
FCEN0117	Biosafety, bioethics, IPR and Patents	Theory	2	Nil	Biotech
FCEN0118	Computer Fundamental and Organization	Theory	3	Nil	CSE - CTIS
FCEN0119	Operating System Building Blocks	Theory	3	Nil	CTIS

Practice Courses

Course Code	Course Title	Course Type	Credits	Prerequisite	Department offering
FCEN0201	<i>Introduction to Internet Technology</i>	<i>Practice</i>	3	<i>Nil</i>	<i>CSE</i>
FCEN0202	<i>Basic Electronics Laboratory</i>	<i>Practice</i>	2	<i>Nil</i>	<i>ECE</i>
FCEN0203	<i>Signals and Systems Laboratory</i>	<i>Practice</i>	2	<i>Nil</i>	<i>ECE</i>
FCEN0204	<i>Digital Electronic Circuits Laboratory</i>	<i>Practice</i>	2	<i>Nil</i>	<i>ECE</i>
FCEN0205	<i>Electronics Workshop - I</i>	<i>Practice</i>	2	<i>Nil</i>	<i>ECE</i>
FCEN0206	<i>Basic Electrical Engineering Lab</i>	<i>Practice</i>	2	<i>FCEN0105 Basic Electrical Engineering (Co-requisite)</i>	<i>EEE</i>
FCEN0207	<i>Electrical Workshop Practice</i>	<i>Practice</i>	2	<i>Nil</i>	<i>EEE</i>
FCEN0208	<i>Basic Electrical Simulation Lab</i>	<i>Practice</i>	2	<i>FCEN0105 Basic Electrical Engineering</i>	<i>EEE</i>
FCEN0209	<i>Electrical Machines-I Lab</i>	<i>Practice</i>	2	<i>FCEN0106 Electrical Machines - I (Co-requisite)</i>	<i>EEE</i>
FCEN0210	<i>Analog and Digital Electronics Lab</i>	<i>Practice</i>	2	<i>FCEN 0107 Analog and Digital Electronics (Co-requisite)</i>	<i>EEE</i>
FCEN0211	<i>Automation Lab (PLC)</i>	<i>Practice</i>	2	<i>FCEN0104 Digital Electronic Circuits</i>	<i>EEE</i>
FCEN0212	<i>Geometric Drawing</i>	<i>Practice</i>	2	<i>Nil</i>	<i>Mechanical</i>
FCEN 0213	<i>Workshop Technology Practice</i>	<i>Practice</i>	2	<i>Nil</i>	<i>Mechanical</i>
FCEN0214	<i>Mine Surveying I</i>	<i>Practice</i>	2	<i>Nil</i>	<i>Mining</i>

Project Courses

Course Code	Course Title	Course Type	Credits	Prerequisite	Department offering
FCEN0304	Electrical Load Survey	Project	2	FCEN0105 Basic Electrical Engineering (Co-requisite)	EEE

Theory cum Practice Courses

Course Code	Course Title	Course Type	Credits	Prerequisite	Department offering
FCEN0401	Basic Fluid Mechanics	Theory + Pract	5	Nil	Civil
FCEN0402	Introduction to Programming in C	Theory + Pract	5	Nil	CSE
FCEN0403	Object Oriented Programming Using C++	Theory + Pract	5	Nil	CSE
FCEN0404	Database Management System	Theory + Pract	5	Nil	CSE
FCEN0405	Mechanical Unit Operations	Theory + Pract	5	Nil	Chemical
FCEN0406	Building Materials & Construction	Theory + Pract	4	Nil	Civil
FCEN0407	Basic Surveying	Theory + Pract	4	Nil	Civil
FCEN0408	Principles of Biochemistry	Theory + Pract	5	Nil	Biotech
FCEN0409	Cell Biology	Theory + Pract	5	Nil	Biotech
FCEN0410	Introduction to Web Technology	Theory + Pract	4	Nil	CSE-CTIS
FCEN0411	Data Structures and algorithms	Theory+ pract	4	Nil	CSE-CTIS
FCEN0412	Designing enterprise network	Theory+ pract	5	Nil	CSE-CTIS
FCEN0413	Installation and configuration of Linux desktop	Theory+ pract	4	Nil	CSE-CTIS
FCEN0414	Information Security - I	Theory+ pract	4	Nil	CSE-CTIS

Project cum Practice Courses

Course Code	Course Title	Course Type	Credits	Prerequisite	Department offering
FCEN0603	Electrical Circuit Drawing (AutoCAD)	Pract.+ Proj.	2	Nil	EEE

BASKET - IV
Civil Engineering

<i>Course Code</i>	<i>Course Title</i>	<i>Course Type</i>	<i>Credits</i>	<i>Prerequisite</i>
CCCE0401	<i>Geotechnical Engineering - I</i>	<i>Theory + Pract</i>	4	<i>Nil</i>
CCCE0402	<i>Highway Engineering</i>	<i>Theory + Pract</i>	4	<i>Nil</i>
CCCE0403	<i>Water supply & Sanitary Engineering</i>	<i>Theory + Pract</i>	4	<i>Nil</i>
CCCE0404	<i>Hydrology & Irrigation</i>	<i>Theory + Pract</i>	4	<i>Nil</i>
CCCE 0405	<i>Analysis & Design of RCC Structures</i>	<i>Theory + Pract</i>	5	<i>CCCE0408Strength of Materials</i>
CCCE 0406	<i>Analysis & Design of Steel Structures</i>	<i>Theory + Pract</i>	5	<i>FCEN0109Engineering Mechanics</i>
CCCE0407	<i>Advanced Surveying</i>	<i>Theory + Pract</i>	4	<i>Nil</i>
CCCE0408	<i>Strength of Materials</i>	<i>Theory</i>	4	<i>Nil</i>
CCCE0101	<i>Geotechnical Engineering - II</i>	<i>Theory + Pract</i>	3	<i>CCCE0401 Geotechnical Engineering - I</i>
CCCE0102	<i>Hydraulics & Hydraulic Machines</i>	<i>Theory</i>	3	<i>FCEN 0401 Basic Fluid Mechanics</i>
CCCE0601	<i>Design of Structures using Software</i>	<i>Pract, + Proj.</i>	3	<i>Nil</i>
CCCE0202	<i>Estimating & Quantity Surveying</i>	<i>Pract. + Proj.</i>	2	<i>Nil</i>
		Total	45	

Mechanical Engineering

<i>Course Code</i>	<i>Course Title</i>	<i>Course Type</i>	<i>Credits</i>	<i>Prerequisite</i>
CCME0401	<i>Machining Technologies</i>	<i>Theory + Pract</i>	5	<i>Nil</i>
CCME0402	<i>Engineering Metrology</i>	<i>Theory + Pract</i>	5	<i>Nil</i>
CCME0403	<i>Mechanics of Solids</i>	<i>Theory + Pract</i>	5	<i>FCEN0109 Engineering Mechanics</i>
CCME0404	<i>Heat Transfer</i>	<i>Theory + Pract</i>	5	<i>FCEN0110Thermal Engineering</i>
CCME0405	<i>Theory of Machines</i>	<i>Theory + Pract</i>	5	<i>Nil</i>
CCME0406	<i>IC Engines & Gas Turbines</i>	<i>Theory + Pract</i>	5	<i>FCEN0110Thermal Engineering</i>
CCME0407	<i>Fluid Mechanics & Hydraulic Machines</i>	<i>Theory + Pract</i>	5	<i>FCEN 0401 Basic Fluid Mechanics</i>
CCME0408	<i>Dynamics of Machines</i>	<i>Theory + Pract</i>	5	<i>Nil</i>
CCME0409	<i>Machine Design</i>	<i>Theory + Pract</i>	5	<i>CCME0403 Mechanics of Solids</i>
		Total	45	

Electronics & Communication Engineering

<i>Course Code</i>	<i>Course Title</i>	<i>Course Type</i>	<i>Credits</i>	<i>Prerequisite</i>
CCEC0101	Analog Electronic Circuits	Theory	3	Nil
CCEC0102	Network Analysis and Synthesis	Theory	3	Nil
CCEC0103	Control Systems Engineering	Theory	3	Nil
CCEC0104	Electromagnetic Field Theory	Theory	3	Nil
CCEC0401	Digital Signal Processing	Theory + Practice	5	Nil
CCEC0402	Introduction to VLSI Design	Theory + Practice	5	Nil
CCEC0403	Analog Communication Techniques	Theory + Practice	5	Nil
CCEC0404	Digital Communication Techniques	Theory + Practice	5	Nil
CCEC0405	ARM Processor based Systems Design	Theory + Practice	5	Nil
CCEC0201	Analog Electronic Circuits Laboratory	Practice	2	Nil
CCEC0601	Electronics Workshop-II	Practice+ Project	2	Nil
CCEC0602	Android	Practice+ Project	2	Nil
CCEC0603	Linux for Embedded Systems	Practice+ Project	2	Nil
		Total	45	

Electrical & Electronics Engineering

<i>Course Code</i>	<i>Course Title</i>	<i>Course Type</i>	<i>Credits</i>	<i>Prerequisite</i>
CCEE0101	Network Theory	Theory	3	FCEN0105 Basic Electrical Engineering
CCEE0102	Electrical Machine-II	Theory	3	FCEN0106 Electrical Machines -I
CCEE0103	Electrical Measurement & Instrumentation	Theory	3	FCEN0105 Basic Electrical Engineering
CCEE0104	Control Systems	Theory	3	FCMA0101 Differential Equations
CCEE0105	Transmission & Distribution	Theory	3	CCEE0101 Network Theory
CCEE0106	Power Electronics	Theory	3	FCEN0102 Basic Electronics
CCEE0107	Power System Protection	Theory	3	CCEE0105 Transmission & Distribution
CCEE0108	Power System Operation & Control	Theory	3	CCEE0104 Control Systems
CCEE0109	Micro Processors & Micro Controllers	Theory	3	FCEN 0107 Analog & Digital Electronics

<i>CCEE0110</i>	<i>Linear Integrated Circuits & Application</i>	<i>Theory</i>	<i>2</i>	<i>FCEN 0107 Analog & Digital Electronics</i>
<i>CCEE0201</i>	<i>Network Theory Lab</i>	<i>Practice</i>	<i>2</i>	<i>FCEN0105 Basic Electrical Engineering</i>
<i>CCEE0202</i>	<i>Electrical Machine-II Lab</i>	<i>Practice</i>	<i>2</i>	<i>FCEN0106 Electrical Machines -I</i>
<i>CCEE0203</i>	<i>Measurement & Instrumentation Lab</i>	<i>Practice</i>	<i>2</i>	<i>FCEN0105 Basic Electrical Engineering</i>
<i>CCEE0204</i>	<i>Control Systems lab</i>	<i>Practice</i>	<i>2</i>	<i>CCEE0101 Network Theory</i>
<i>CCEE0205</i>	<i>Power Electronics Lab</i>	<i>Practice</i>	<i>2</i>	<i>FCEN0102 Basic Electronics</i>
<i>CCEE0206</i>	<i>Embedded C</i>	<i>Practice</i>	<i>2</i>	<i>FCEN0402 Introduction to Programming in C</i>
<i>CCEE0207</i>	<i>Introduction to Linux</i>	<i>Practice</i>	<i>2</i>	<i>Nil</i>
<i>CCEE0208</i>	<i>Micro Processors & Micro Controllers Lab</i>	<i>Practice</i>	<i>2</i>	<i>FCEN 0107 Analog & Digital Electronics</i>
		Total	45	

Computer Science & Systems Engineering

Course Code	Course Title	Course Type	Credits	Prerequisite
<i>CCCS0401</i>	<i>Data Structures using C</i>	<i>Theory + Practice</i>	<i>5</i>	<i>FCEN0402 Introduction to Programming in C</i>
<i>CCCS0402</i>	<i>Design and Analysis of Algorithms</i>	<i>Theory + Practice</i>	<i>6</i>	<i>CCCS0401 Data Structures using C</i>
<i>CCCS0403</i>	<i>Advance Database Management System</i>	<i>Theory + Practice</i>	<i>6</i>	<i>FCEN0404 Database Management System</i>
<i>CCCS0301</i>	<i>Major Programming Project</i>	<i>Project</i>	<i>6</i>	<i>Nil</i>
<i>CCCS0102</i>	<i>Basic Compiler Design</i>	<i>Theory</i>	<i>3</i>	<i>Nil</i>
<i>CCCS0103</i>	<i>Computer Organization</i>	<i>Theory</i>	<i>3</i>	<i>Nil</i>
<i>CCCS0104</i>	<i>Computer Networking</i>	<i>Theory</i>	<i>3</i>	<i>Nil</i>
<i>CCCS0105</i>	<i>Software Engineering</i>	<i>Theory</i>	<i>3</i>	<i>Nil</i>
<i>CCCS0106</i>	<i>Introduction to Theory of Computation</i>	<i>Theory</i>	<i>3</i>	<i>Nil</i>
<i>CCCS0901</i>	<i>Operating System</i>	<i>Theory + Practice + Project</i>	<i>7</i>	<i>FCEN0402 Introduction to Programming in C</i>
		Total	45	

Cloud Technology and Information Security

Course Code	Course Title	Course Type	Credits	Prerequisite
CCCS0404	<i>Basic Scripting languages</i>	<i>Theory +Practice</i>	5	<i>Nil</i>
CCCS0405	<i>Principles of Virtualization</i>	<i>Theory +Practice</i>	4	<i>NIL</i>
CCCS0406	<i>Ethical Hacking Fundamentals</i>	<i>Theory +Practice</i>	5	<i>Nil</i>
CCCS0407	<i>Desktop Operating System</i>	<i>Theory +Practice</i>	4	<i>Nil</i>
CCCS0408	<i>Installation and Configuration of Server</i>	<i>Theory +Practice</i>	4	<i>Nil</i>
CCCS0107	<i>Cryptography Fundamentals</i>	<i>Theory</i>	3	<i>Nil</i>
CCCS0108	<i>Introduction to Cloud Technology</i>	<i>Theory</i>	3	<i>CCCS0405 Principle of Virtualization</i>
CCCS0109	<i>Fundamentals of Storage</i>	<i>Theory</i>	3	<i>Nil</i>
CCCS0110	<i>Fundamentals of Data Center</i>	<i>Theory</i>	3	<i>Nil</i>
CCCS0111	<i>OSI Layer and Protocols</i>	<i>Theory</i>	3	<i>NIL</i>
CCCS0112	<i>Disaster recovery and Business Continuity Management</i>	<i>Theory</i>	3	<i>Nil</i>
CCCS0113	<i>Hacktivism , cyber warfare and Cyber terrorim</i>	<i>Theory</i>	3	<i>Nil</i>
CCCS0701	<i>Mini project</i>	<i>Project</i>	4	<i>FCEN0402 Introduction to Programming in C</i>
		Total	47	

Petro - Chemical Engineering

Course Code	Course Title	Course Type	Credits	Prerequisite
CCCM0401	<i>Process Heat Transfer</i>	<i>Theory + Practice</i>	5	
CCCM0402	<i>Chemical Reaction Engineering</i>	<i>Theory + Practice</i>	5	
CCCM0403	<i>Instrumentation & Process Control</i>	<i>Theory + Practice</i>	5	
CCCM0404	<i>Petroleum Refinery Engineering</i>	<i>Theory + Practice</i>	5	
CCCM0405	<i>Mass Transfer operations</i>	<i>Theory + Practice</i>	5	
CCCM0406	<i>Petroleum Reservoir Engineering</i>	<i>Theory + Practice</i>	5	
CCCM0407	<i>Petroleum Production Engineering & Design</i>	<i>Theory + Practice</i>	5	
CCCM0408	<i>Petroleum Exploration and Exploitation Techniques</i>	<i>Theory + Practice</i>	5	
CCCM0101	<i>Thermodynamics for Petroleum Engineers</i>	<i>Theory</i>	5	
		Total	45	

Mining Engineering

<i>Course Code</i>	<i>Course Title</i>	<i>Course Type</i>	<i>Credits</i>	<i>Prerequisite</i>
CCMN0101	<i>Mineralogy Petrology and Stratigraphy</i>	<i>Theory</i>	<i>3</i>	<i>Nil</i>
CCMN0102	<i>Geology for Mining Engineers</i>	<i>Theory</i>	<i>3</i>	<i>Nil</i>
CCMN0103	<i>Mine Environmental Engineering</i>	<i>Theory</i>	<i>3</i>	<i>Nil</i>
CCMN0104	<i>Surface Mining</i>	<i>Theory</i>	<i>3</i>	<i>Nil</i>
CCMN0105	<i>Underground Coal Mining</i>	<i>Theory</i>	<i>3</i>	<i>Nil</i>
CCMN0106	<i>Underground Metal Mining</i>	<i>Theory</i>	<i>3</i>	<i>Nil</i>
CCMN0107	<i>Mine Machinery I</i>	<i>Theory</i>	<i>3</i>	<i>Nil</i>
CCMN0108	<i>Mine Machinery II</i>	<i>Theory</i>	<i>3</i>	<i>Nil</i>
CCMN0109	<i>Mine Legislation and Safety I</i>	<i>Theory</i>	<i>3</i>	<i>Nil</i>
CCMN0110	<i>Mine Legislation and Safety II</i>	<i>Theory</i>	<i>3</i>	<i>Nil</i>
CCMN0111	<i>Mine System Engineering</i>	<i>Theory</i>	<i>3</i>	<i>Nil</i>
CCMN0112	<i>Drilling and Blasting</i>	<i>Theory</i>	<i>3</i>	<i>Nil</i>
CCMN0113	<i>Rock Mechanics</i>	<i>Theory</i>	<i>3</i>	<i>Nil</i>
CCMN0201	<i>Mineralogy Petrology Lab</i>	<i>Practical</i>	<i>2</i>	<i>Nil</i>
CCMN0202	<i>Geology for Mining Engineers Lab</i>	<i>Practical</i>	<i>2</i>	<i>Nil</i>
CCMN0203	<i>Rock Mechanics Lab</i>	<i>Practical</i>	<i>2</i>	<i>Nil</i>
		Total	45	

Biotechnology

Course Code	Course Title	Course type	Credits	Prerequisite
CCBT0101	<i>Genomics and Proteomics</i>	<i>Theory</i>	<i>3</i>	<i>Biochemistry</i>
CCBT0102	<i>Enzymology and enzyme technology</i>	<i>Theory</i>	<i>3</i>	<i>Biochemistry</i>
CCBT0103	<i>Animal Biotechnology</i>	<i>Theory</i>	<i>3</i>	<i>Introduction to Biotech</i>
CCBT0104	<i>Plant Biotechnology</i>	<i>Theory</i>	<i>3</i>	<i>Introduction to Biotech</i>
CCBT0105	<i>Analytical techniques</i>	<i>Theory</i>	<i>3</i>	<i>Biophysics, Biochemistry</i>
CCBT0106	<i>Computational Biology</i>	<i>Theory</i>	<i>3</i>	<i>Biophysics, Biochemistry</i>
CCBT0107	<i>Bioprocess Principles</i>	<i>Theory</i>	<i>3</i>	<i>Nil</i>
CCBT0108	<i>Environmental Biotechnology</i>	<i>Theory</i>	<i>2</i>	<i>Nil</i>
CCBT0401	<i>Molecular Biology</i>	<i>Theory + Practice</i>	<i>5</i>	<i>Nil</i>
CCBT0402	<i>Immunology</i>	<i>Theory + Practice</i>	<i>4</i>	<i>Biochemistry</i>
CCBT0403	<i>Introductory Biostatistics and Bioinformatics</i>	<i>Theory + Practice</i>	<i>4</i>	<i>Nil</i>
CCBT0404	<i>Recombinant DNA technology</i>	<i>Theory + Practice</i>	<i>4</i>	<i>Biochemistry, Biotechnology</i>
CCBT0405	<i>Microbiology</i>	<i>Theory + Practice</i>	<i>5</i>	<i>Nil</i>
		Total	45	

BASKET - V

Humanities

Course Code	Course Title	Course Type	Credits	Prerequisite
DEHU0602	Research and Project Writing	Project +Practice	2	
DEHU0201	Life Skills Development - Presentation Skills (LSD) - IV	Practice	2	
DEHU0202	Life Skills Development (LSD) - V[GD & PI]	Practice	2	

Management

Course code	Course Name	Course Type	Credits	Pre-requisite
DEMG0101	Engineering Ethics	Theory	2	Nil
DEMG0102	Entrepreneurship Development	Theory	2	Nil
DEMG0103	Technology Management	Theory	2	Nil
DEMG0104	Total Quality Management	Theory	2	Nil
DEMG0105	Human Resource Management	Theory	2	Nil
DEMG0106	Decision Perspective of Management	Theory	2	Nil
DEMG0107	Project Management	Theory	2	Nil

Mathematics

Course code	Course Name	Course Type	Credits	Pre-requisite
DEMA0101	Probability & Statistics	Theory	3	Nil
DEMA0102	Numerical Methods	Theory	3	FCBS 01021 Differential Equations

DOMAIN COURSE STRUCTURE

DOMAIN - I CONSTRUCTION PLANNING & MANAGEMENT

Sl. No.	Course Code	Course Title	Course Nature	Credits
1	DECE0111	Quality Control in Construction Industry	<i>Theory</i>	3
2	DECE0112	Building Services		3
3	DECE0113	Risk Management & Safety in Construction Industry		3
4	DECE0114	Renovation of Buildings & Maintenance Management		3
5	DECE0115	Contract Laws and Claims		3
6	DECE0116	Advanced Construction Materials		3
7	DECE0411	Construction Costing & Financial Management	<i>Theory + Practice</i>	5
8	DECE0511	Site Supervision	<i>Project Based Theory</i>	4
9	DECE0512	Site Management		4
10	DECE0513	Project Scheduling & Materials Management		4
11	DECE0514	Specifications and Rate Analysis		4
12	DECE0515	Construction Project Management		4
13	DECE0516	Construction Equipment Management		4
14	DECE0517	Methods of Measurements of Buildings and Civil Engineering Works (IS 1200 Parts 1 to 28)		4
15	DECE0518	Tenders, Bidding Process & Contract Strategy		4
16	DECE0300	Project		8
17	DECE0800	Internship		6
Total				69

DOMAIN - II SURVEYING

Sl. No.	Course Code	Course Title	Course Nature	Credits
1	DECE0421	Remote Sensing & GIS	<i>Theory + Practice</i>	5
2	DECE0422	GIS for Civil Engineering		5
3	DECE0423	Aerial Photogrammetric Survey		5
4	DECE0424	LIDAR Application		5
5	DEMG0102	Entrepreneurship Development	<i>Theory</i>	2
6	DECE0300	Project		8
7	DECE0800	Internship		6
Total				36

DOMAIN - III PLANNING, DESIGN & DRAWING

<i>Sl. No.</i>	<i>Course Code</i>	<i>Course Title</i>	<i>Course Nature</i>	<i>Credits</i>
1	DECE0131	Architecture Design	Theory	3
2	DECE0132	Town Planning	Theory	3
3	DECE0133	Building Planning and Design	Theory	3
3	DECE0431	Computer Graphics - I	Theory + Practice	4
4	DECE0432	Computer Graphics - II	Theory + Practice	4
5	DECE0433	Computer Graphics - III	Theory + Practice	4
6	DECE0434	Multi-storied Building Design	Theory + Practice	4
7	DECE0455	3D Modelling through ANSYS and CATIA	Theory + Practice	4
8	DECE0531	Disaster Resistant Architecture	Theory + Project	4
9	DECE0300	Project		8
10	DECE0800	Internship		6
			Total	47

DOMAIN - IV AUTOMOTIVE DESIGN

<i>Sl. No.</i>	<i>CODE</i>	<i>Subject</i>	<i>Pedagogy</i>	<i>Credits</i>
1	DEME0611	Fundamentals of Vehicle Design & Packaging	Practice+ project	6
2	DEME0612	Automotive Power Train Design	Practice+ project	6
3	DEME0613	Chassis Design for Automobiles	Practice+ project	6
3	DEME0614	Interior and Exterior Design for Automobiles	Practice+ project	6
4	DEME0311	Seminar on Domain specific topic	Project	2
5	DEME0300	Project		8
6	DEME0800	Internship		6
			Total	40

DOMAIN – V WELDING

<i>Sl No.</i>	<i>CODE</i>	<i>Subject</i>	<i>Pedagogy</i>	<i>Credits</i>
1	DEME0421	Joining Processes & Technology	Theory+ practice	5
2	DEME0422	Metal Transfer & Weld Metallurgy	Theory+ practice	5
3	DEME0423	Design for Welded Joints	Theory+ practice	5
4	DEME0424	Welding of Heavy Fabrication	Theory+ practice	5
5	DEME0321	Advanced Welding Technology	Theory+ practice	5
6	DEME0311	Seminar on Domain specific topic	Project	2
7	DEME0300	Project		8
8	DEME0800	Internship		6
			Total	41

DOMAIN - VI MANUFACTURING

<i>Sl. No.</i>	<i>CODE</i>	<i>Subject</i>	<i>Pedagogy</i>	<i>Credits</i>
1	DEME0431	Conventional Machining	Theory+ practice	5
2	DEME0432	CNC Machining	Theory+ practice	5
3	DEME0433	Non Traditional Machining	Theory+ practice	5
4	DEME0434	Composite Materials	Theory+ practice	5
5	DEME0435	Design of Jigs, Fixtures & Gauges	Theory+ practice	5
6	DEME0436	Process Planning	Theory+ practice	5
7	DEME0331	Seminar on Domain specific topic	project	2
8	DEME0300	Project		8
9	DEME0800	Internship		6
			Total	46

DOMAIN - VII EMBEDDED SYSTEM

S. No.	Course Code	Course Title	Course Nature	Credits
1	DEEC0411	<i>Embedded RTOS and VX Works</i>	<i>Theory + Practice</i>	6
2	DEEC0412	<i>Linux: Kernel Programming and Device Driver</i>	<i>Theory + Practice</i>	6
3	DEEC0413	<i>Model based design using MATLAB</i>	<i>Theory + Practice</i>	5
4	DEEC0511	<i>System Programming using LINUX with project</i>	<i>Theory + Project</i>	5
5	DEEC0311	<i>Seminar on Domain specific topic</i>	<i>Project</i>	2
6	DEEC0300	<i>Project</i>		8
	DEEC0800	<i>Internship</i>		6
			Total	38

DOMAIN - VIII VLSI DESIGN & VERIFICATION

S. No.	Course Code	Course Title	Course Nature	Credits
1	DEEC0421	<i>FPGA Architecture and Design</i>	<i>Theory + Practice</i>	4
2	DEEC0422	<i>HDL Synthesis and System Architecture</i>	<i>Theory + Practice</i>	4
3	DEEC0423	<i>Digital System Design using VERILOG</i>	<i>Theory + Practice</i>	4
4	DEEC0424	<i>Verification using System VERILOG</i>	<i>Theory + Practice</i>	5
5	DEEC0425	<i>VLSI Verification Methodologies</i>	<i>Theory + Practice</i>	5
6	DEEC0521	<i>Digital VLSI Testing</i>	<i>Theory + Project</i>	4
7	DEEC0311	<i>Seminar on Domain specific topic</i>		2
8	DEEC0300	<i>Project</i>		8
9	DEEC0800	<i>Internship</i>		6
			Total	42

Domain - IX Industrial Automation

<i>Sl No.</i>	<i>Course Code</i>	<i>Course Title</i>	<i>Course Nature</i>	<i>Credits</i>
1	DEEE0111	Allen Bradley SLC 500, Siemens S7-300	Theory	4
2	DEEE0112	Schneider MODICON TSX-Micro, GE Versamax-Microplus	Theory	4
3	DEEE0113	SCADA-Schneder-Wonderware In Touch	Theory	4
4	DEEE0114	SCADA-AllenBradley-RSVView32	Theory	4
5	DEEE0211	Basic Electrical (Automation based)	Practice	2
6	DEEE0212	Basic Industrial Automation (Power Electronics Based)	Practice	2
7	DEEE0213	General PLC	Practice	2
8	DEEE0214	HMI-AllenBradley-Panel View C600	Practice	2
9	DEEE0311	Seminar on Domain Specific Topic		2
10	DEEE0300	Project		8
	DEEE0800	Internship		6
			Total	40

DOMAIN –X WEB TECHNOLOGY

<i>S. No.</i>	<i>Course Code</i>	<i>Course Title</i>	<i>Course Nature</i>	<i>Credits</i>
1	DECS0411	Database Applications Using MySQL	Theory + Practice	4
2	DECS0412	Web Programming	Theory + Practice	3
3	DECS0413	Advanced Web Programming - I	Theory + Practice	4
4	DECS0414	Content Management System	Theory + Practice	3
5	DECS0415	Responsive Web Programming	Theory + Practice	3
6	DECS0416	Search Engine Optimization	Theory + Practice	3
7	DECS0417	Advanced Web Programming - II	Theory + Practice	4
8	DECS0300	Project		8
9	DECS0800	Internship		6
			Total	38

DOMAIN –XI DATA ANALYTIC

<i>S. No.</i>	<i>Course Code</i>	<i>Course Title</i>	<i>Course Nature</i>	<i>Credits</i>
1	DECS0421	Advance Web Application Development using Java	Theory + Practice	3
2	DECS0422	Database Applications using Postgres	Theory + Practice	3
3	DECS0423	Basics of Business Intelligence & D/W	Theory + Practice	3
4	DECS0424	ETL and Data Modelling	Theory + Practice	3
5	DECS0425	Data Warehousing Life Cycle	Theory + Practice	3
6	DECS0426	Unstructured Data Analytics	Theory + Practice	3
7	DECS0427	Advanced Data Modelling & Mining	Theory + Practice	3
8	DECS0221	Advanced Visualisation	Practice	3
9	DECS0300	Project D/W Modelling, ETL & Visualisation	Project	8
10	DECS0800	Internship		6
			Total	38

DOMAIN - XII INTERNET SECURITY

<i>S. No.</i>	<i>Course Code</i>	<i>Course Title</i>	<i>Course Nature</i>	<i>Credits</i>
1	DECS0131	Introduction to IT Networking & Security	Theory	4
2	DECS0132	Information System Security	Theory	4
3	DECS0133	White Hat Hacking Technique	Theory	4
4	DECS0134	Information Security GRC	Theory	4
5	DECS0231	White Hat Hacking Tools	Practice	4
6	DECS0232	Case Study - Audit of an Industry	Practice	4
7	DECS0300	Project		8
8	DECS0800	Internship		6
			Total	38

DOMAIN XIII CLOUD TECHNOLOGY

<i>S. No.</i>	<i>Course Code</i>	<i>Course Title</i>	<i>Course Nature</i>	<i>Credits</i>
1	DECS0441	Cloud Computing solution	Theory+pract	5
2	DECS0442	Linux Administration	Theory+pract	5
3	DECS0443	Advanced Installation and configuration of Server	Theory+pract	6
4	DECS0141	Fundamentals of Exchange Server	Theory	3
5	DECS0142	Advanced Storage Technology	Theory	3
6	DECS0143	Administration of server	Theory	3
6	DECS0143	Cloud Web Service	Theory	3
7	DECS0300	Project		8
8	DECS0800	Internship		6
			Total	40

DOMAIN XIV INFORMATION SECURITY

<i>S. No.</i>	<i>Course Code</i>	<i>Course Title</i>	<i>Course Nature</i>	<i>Credits</i>
1	DECS0451	Cyber Forensics – An Introduction	Theory+pract	5
2	DECS0452	Android Security	Theory+pract	5
	DECS0151	Fundamentals of Exchange Server	Theory	3
3	DECS0152	IT Governance, Risk and Information Security Management	Theory	3
4	DECS0153	Information Security – II	Theory	3
5	DECS0154	Virtualization and Cloud Security	Theory	4
6	DECS0155	Security in wireless, VOIP and Mobile Apps	Theory	4
7	DECS0300	Project		8
8	DECS0800	Internship		6
			Total	41

DOMAIN XV Chemical Engineering

S. No.	Course Code	Course Title	Course Nature	Credits
1	DECM0101	Health, Safety & Environment in Petroleum Industry	Theory	3
2	DECM0102	Regulatory and Policy Issues in Hydrocarbon Sector	Theory	3
3	DECM0103	Petroleum Engineering Economics, Policies & Laws	Theory	3
4	DECM0104	Earth Science & Hydrocarbon Exploration Fieldwork	Theory	3
5	DECM0300	Project		8
6	DECM0800	Internship		6
			Total	26