# Course Structureof B.Tech. in Ceramic Technology

***(Applicable from the academic session 2024-2025)***

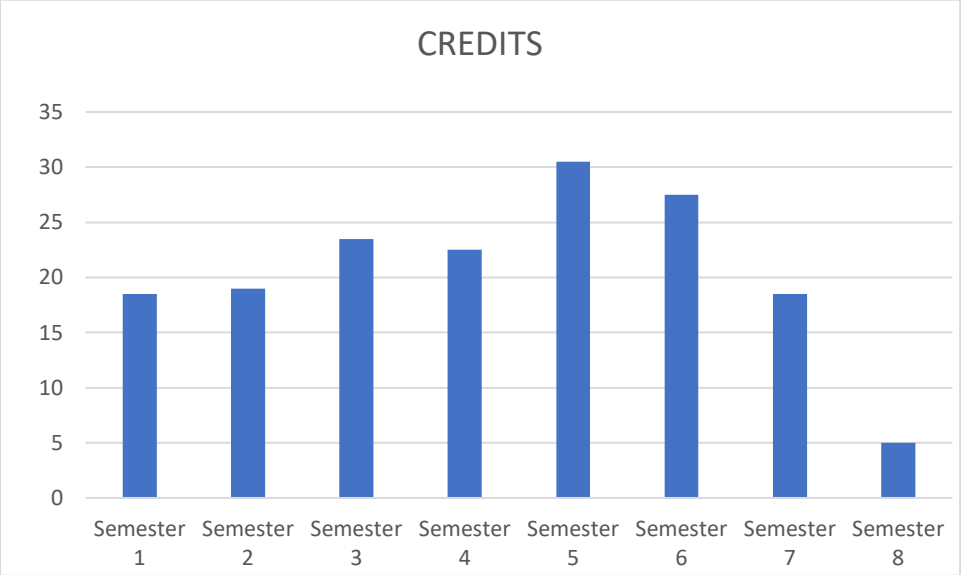
(Department of Ceramic Technology)


*Government College of Engineering & Ceramic Technology*

*73, A.C Banerjee Lane*

*Kolkata-700010*

# Distribution of Credit points (semester wise)




| SEMESTER | CREDITS |
|---|---|
| Semester 1 | 18.5 |
| Semester 2 | 20 |
| Semester 3 | 23.5 |
| Semester 4 | 22.5 |
| Semester 5 | 30.5 |
| Semester 6 | 27.5 |
| Semester 7 | 18.5 |
| Semester 8 | 5 |
| | |
| **Total Credits** | **166** |

## CREDIT POINTS OF FIRST YEAR = 38.5

| 1st Semester B. Tech Ceramic Technology | | | | | | | |
|---|---|---|---|---|---|---|---|
| Sl. No. | Type of course | Course Code | Course Title | Hours per week | | | Credits |
| | | | | Lecture | Tutorial | Practical | |
| **Theory** | | | | | | | |
| 1 | Basic Science course | BS(CT) 101 | Mathematics – I | 3 | 0 | 0 | 3 |
| 2 | Basic Science course | BS(CT) 102 | Chemistry | 3 | 0 | 0 | 3 |
| 3 | Basic Science course | ES(CT) 101 | Programming for Problem solving | 3 | 0 | 0 | 3 |
| 4 | Engineering Science Course | ES(CT) 102 | Electronics | 3 | 0 | 0 | 3 |
| **Sessional/Practical** | | | | | | | |
| 1 | Basic Science course | BSL(CT) 103 | Chemistry Lab | 0 | 0 | 3 | 1.5 |
| 2 | Engineering Science Course | ESL(CT) 103 | Programming for Problem solving Lab | 0 | 0 | 2 | 1 |
| 3 | Engineering Science Course | ESL(CT) 104 | Engineering Graphics & Design | 1 | 0 | 2 | 2 |
| 4 | Engineering Science Course | ESL(CT) 105 | Electronics Lab | 0 | 0 | 2 | 1 |
| 5 | Humanities & Social Sciences including Management | HSL(CT) 101 | Design & Thinking Lab | 0 | 0 | 2 | 1 |
| | | | | **Total credits** | | | **18.5** |

Th. = 04 Pr. = 05 BS= 9 + 1.5 ES= 3 + 4 HS= 1

| 2nd Semester B. Tech Ceramic Technology | | | | | | | |
|---|---|---|---|---|---|---|---|
| Sl. No. | Type of course | Course Code | Course Title | Hours per week | | | Credits |
| | | | | Lecture | Tutorial | Practical | |
| **Theory** | | | | | | | |
| 1 | Basic Science course | BS(CT) 204 | Mathematics-II | 3 | 0 | 0 | 3 |
| 2 | Basic Science course | BS(CT) 205 | Physics | 3 | 0 | 0 | 3 |
| 3 | Engineering Science Course | ES(CT) 206 | Basic Electrical Engineering | 3 | 0 | 0 | 3 |
| 4. | Engineering Science Course | ES(CT) 207 | Basic Mechanical Engineering | 3 | 0 | 0 | 3 |
| 5. | Humanities & Social Sciences including Management | HS(CT) 202 | English | 2 | 0 | 0 | 2 |
| **Sessional/Practical** | | | | | | | |
| 1 | Basic Science course | BSL(CT) 206 | Physics Lab | 0 | 0 | 2 | 1 |
| 2 | Engineering Science Course | ESL(CT) 208 | Basic Electrical Engineering Lab | 0 | 0 | 2 | 1 |
| 3 | Engineering Science Course | ESL(CT) 209 | Workshop / Manufacturing Practices | 1 | 0 | 2 | 2 |
| 4. | Humanities & Social Sciences including Management | HSL(CT) 203 | English Communication Lab | 0 | 0 | 2 | 1 |
| 5. | Community Service/ Extra-Curricular Activity | ECA(CT) 201 | Extra-Curricular Activity (NSS) | 0 | 0 | 0 | 1 |
| | | | | **Total credits** | | | **20** |

Th. = 05 Pr. = 04 BS= 6 + 1 ES= 6 + 3 HS= 2 + 1

| 3rdSemester B. Tech Ceramic Technology | | | | | | | |
|---|---|---|---|---|---|---|---|
| Sl. No. | Type of course | Course Code | Course Title | Hours per week | | | Credits |
| | | | | Lecture | Tutorial | Practical | |
| **Theory** | | | | | | | |
| 1. | Basic Science Course | BS(CT) 307 | Engineering Mathematics | 3 | 0 | 0 | 3 |
| 2. | Basic Science Course | BS(CT) 308 | Environmental Sciences | 2 | 0 | 0 | 2 |
| 3. | Professional Core Course | PC(CT) 301 | Ceramic Raw Materials | 4 | 0 | 0 | 4 |
| 4. | Professional Core Course | PC(CT) 302 | Unit Operation I | 3 | 0 | 0 | 3 |
| 5. | Professional Core Course | PC(CT) 303 | Energy Resources & Furnaces | 4 | 0 | 0 | 4 |
| 6. | Engineering Science Course | ES(CT) 310 | Engineering Thermodynamics | 3 | 0 | 0 | 3 |
| **Sessional/Practical** | | | | | | | |
| 1. | Professional Core Course | PCL(CT) 304 | Powder Preparation & Chemical Analysis of Ceramic Raw Materials and Products Lab | 0 | 0 | 3 | 1.5 |
| 2. | Professional Core Course | PCL(CT) 305 | Fuels Testing Lab | 0 | 0 | 2 | 1 |
| 3. | Basic Science Course | BSL(CT)309 | Numerical Methods Lab | 0 | 0 | 2 | 1 |
| 4. | Soft Skill Development | SD (CT) 301 | Soft Skill 1 | 0 | 0 | 0 | 1 |
| | | | | **Total credits** | | | **23.5** |

Th. = 06 Pr. = 03 BS= 5 + 1 ES= 3 PCC= 11 + 2.5 HS= 0

Sessional (training) = 1

| 4th Semester B. Tech Ceramic Technology | | | | | | | |
|---|---|---|---|---|---|---|---|
| Sl. No. | Type of course | Course Code | Course Title | Hours per week | | | Credits |
| | | | | Lecture | Tutorial | Practical | |
| **Theory** | | | | | | | |
| 1. | Basic Science Course | BS(CT) 410 | Biology for Engineers | 3 | 0 | 0 | 3 |
| 2. | Professional Core Course | PC(CT) 406 | Unit Operation II | 3 | 0 | 0 | 3 |
| 3. | Engineering Science Course | ES(CT) 411 | Engineering Materials Science I | 3 | 0 | 0 | 3 |
| 4. | Professional Core Course | PC(CT) 407 | Processing of Ceramics | 3 | 0 | 0 | 3 |
| 5. | Engineering Science Course | ES(CT) 412 | Fundamentals of Metallurgy | 3 | 0 | 0 | 3 |
| 6. | Professional Elective Course | PE(CT) 401 | Process Calculations(A)/ Introduction to Industrial Ceramics (B) | 3 | 0 | 0 | 3 |
| **Sessional/Practical** | | | | | | | |
| 1. | Professional Core Course | PCL(CT)408 | Physical Testing & Instrumental Methods of Analysis of Raw Materials & Products Lab | 0 | 0 | 3 | 1.5 |
| 2. | Professional Core Course | PCL(CT) 409 | Unit Operation Lab | 0 | 0 | 2 | 1 |
| 3. | Project | PROJ(CT) 401 | Project 1 * | 0 | 0 | 4 | 2 |
| | | | | **Total credits** | | | **22.5** |

Summer Internship 1 (4 to 6 weeks training in summer to be evaluated in 5th Semester)

Th. = 06 Pr. = 03 BS= 3 + 1 ES= 3 PCC= 6 + 2.5 PEC = 3 HS= 0

Sessional (project) = 2

- Project 1: Topic Choice and Literature Review

| 5th Semester B. Tech Ceramic Technology | | | | | | | |
|---|---|---|---|---|---|---|---|
| Sl. No. | Type of course | Course Code | Course Title | Hours per week | | | Credits |
| | | | | Lecture | Tutorial | Practical | |
| **Theory** | | | | | | | |
| 1. | Professional Core Course | PC(CT) 510 | Refractories | 3 | 0 | 0 | 3 |
| 2. | Professional Core Course | PC(CT) 511 | Glass Science &Technology | 3 | 0 | 0 | 3 |
| 3. | Professional Core Course | PC(CT) 512 | Whitewares | 3 | 0 | 0 | 3 |
| 4. | Professional Elective Course | PE(CT) 502 | Bio Ceramics (A) / Nano Ceramics (B) | 3 | 0 | 0 | 3 |
| 5. | Open Elective Course | OE(CT) 501 | DBMS (A) / Object Oriented Programming (B) / Operation Research (C) | 3 | 0 | 0 | 3 |
| 6. | Humanities & Social Sciences including Management Courses | HS(CT) 504 | Economics & Statistics | 4 | 0 | 0 | 4 |
| **Sessional/Practical** | | | | | | | |
| 1. | Professional Core Course | PCL(CT) 513 | Refractories Lab | 0 | 0 | 3 | 1.5 |
| 2. | Professional Core Course | PCL (CT) 514 | Glass Lab | 0 | 0 | 3 | 1.5 |
| 3. | Professional Core Course | PCL(CT) 515 | Whitewares Lab | 0 | 0 | 3 | 1.5 |
| 4. | Open Elective Course | OEL(CT)502 | DBMS Lab (A) / Object Oriented Programming Lab (B) / OR Lab (C) | 0 | 0 | 2 | 1 |
| 5. | Project | PROJ(CT) 502 | Project 2 * | 0 | 0 | 10 | 5 |
| 6. | Internship | INDTR (CT) 501 | Summer Internship 1 * | 0 | 0 | 0 | 1 |
| | | | | **Total credits** | | | **30.5** |

Th. = 06 Pr. = 04 BS= 0 OEC= 3 +1 PCC= 12 + 4.5 PEC = 3 HS= 4

Sessional (project + training) = 5+1

- Summer Internship 1: Inter-institutional / Industrial
- Project 2: Objective, Plan of work & Exp. Work 1

| 6thSemester B. Tech Ceramic Technology | | | | | | | |
|---|---|---|---|---|---|---|---|
| Sl. No. | Type of course | Course Code | Course Title | Hours per week | | | Credits |
| | | | | Lecture | Tutorial | Practical | |
| **Theory** | | | | | | | |
| 1. | Professional Core Course | PC(CT) 616 | Cement, Concrete & Monolithic Refractories | 4 | 0 | 0 | 4 |
| 2. | Professional Core Course | ES(CT) 613 | Engineering Materials Science II | 3 | 0 | 0 | 3 |
| 3. | Professional Core Course | PC(CT) 617 | Advanced Ceramics | 3 | 0 | 0 | 3 |
| 4. | Professional Elective Course | PE(CT) 603 | Refractories for Ferrous Industries (A) / Refractories for Non -ferrous & Other Industries (B) | 3 | 0 | 0 | 3 |
| 5. | Open Elective Course | OE(CT) 603 | Total Quality Management (A) / Environment Engg. & Management (B) | 3 | 0 | 0 | 3 |
| 6. | Professional Core Course | PC(CT) 618 | Instrumentation & Process Control | 4 | 0 | 0 | 4 |
| **Sessional/Practical** | | | | | | | |
| 1. | Professional Core Course | PCL(CT) 619 | Cement & Concrete Lab | 0 | 0 | 3 | 1.5 |
| 2. | Project | PROJ(CT) 603 | Project 3 * | 0 | 0 | 10 | 5 |
| 3. | Soft Skill Development | SD(CT) 602 | Soft Skill 2 * | 0 | 0 | 2 | 1 |
| | | | | **Total credits** | | | **27.5** |

Th. = 07 Pr. = 02 BS= 0 OEC= 3 PCC= 14 + 1.5 PEC = 3 HS=1

Sessional (project) = 5

- Project 3: Experimental stage-II, Result and Discussion
- Soft Skill 2: Group Discussions, Mock Interviews etc.

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Summer Internship 2: Students would undergo 8 weeks' Industrial training/internship after 6th Semester to be evaluated in 7th Semester

## 7thSemester B. Tech Ceramic Technology

| Sl. No. | Type of course | Course Code | Course Title | Hours per week | | | Credits |
|---|---|---|---|---|---|---|---|
| | | | | Lecture | Tutorial | Practical | |
| **Theory** | | | | | | | |
| 1. | Professional Core Course | PC(CT) 720 | Computational Materials Science | 3 | 0 | 0 | 3 |
| 2. | Professional Elective Course | PE(CT) 704 | Non-oxide Ceramics (A)/ Composites (B) | 3 | 0 | 0 | 3 |
| 3. | Open Elective Course | OE(CT) 704 | Artificial Intelligence & Robotics (A) / Internet of Things (B) / Machine Learning (C) | 3 | 0 | 0 | 3 |
| 4. | Humanities & Social Sciences including Management Courses | HS(CT) 706 | Fundamentals of Business Management | 3 | 0 | 0 | 3 |
| 5. | Humanities & Social Sciences including Management Courses | HSL(CT) 707 | Indian Constitution | 2 | 0 | 0 | 2 |
| **Sessional/Practical** | | | | | | | |
| 1. | Soft Skill Development | SD(CT) 703 | Soft Skill 3 * | 0 | 0 | 2 | 1 |
| 2. | Internship | INDTR (CT) 702 | Summer Internship 2 | - | - | - | 2 |
| 3. | Professional Elective Course | PEL(CT) 705 | Ceramic Plant & Equipment Design (A)/ Furnace & Kilns Design (B) | 0 | 0 | 3 | 1.5 |
| | | | | **Total credits** | | | **18.5** |

Th. = 05 Pr. = 02 BS= 0 OEC= 3 PCC= 3 + 1.5 PEC = 3 HS= 5+1

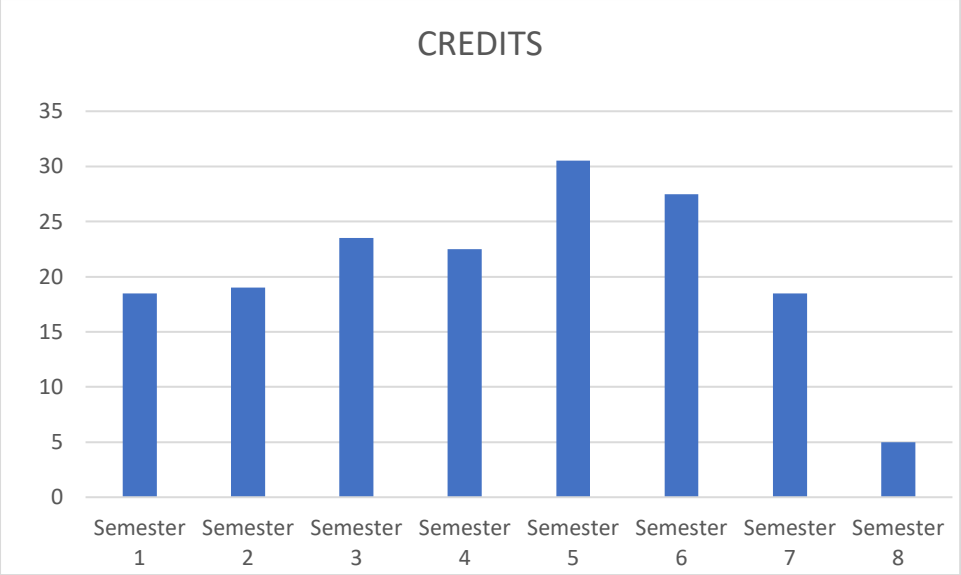
Sessional (Industrial training) = 2

- Soft Skill 3: Seminar on an assigned topic (Technical)

| 8th Semester B. Tech Ceramic Technology | | | | | | | |
|---|---|---|---|---|---|---|---|
| Sl. No. | Type of course | Course Code | Course Title | Hours per week | | | Credits |
| | | | | Lecture | Tutorial | Practical | |
| **Sessional/Practical** | | | | | | | |
| 1. | Internship & Finishing School | INDTR (CT) 803 | Internship 3 * | - | - | - | 3 |
| 2. | Comprehensive Viva Voce | PCL(CT) 821 | Comprehensive Viva Voce | - | - | - | 2 |
| | | | | **Total credits** | | | **5** |

- Internship 3: Industrial Project & Hard Skill

# Distribution of Credit points (semester wise)




| SEMESTER | CREDITS |
|---|---|
| Semester 1 | 18.5 |
| Semester 2 | 20 |
| Semester 3 | 23.5 |
| Semester 4 | 22.5 |
| Semester 5 | 30.5 |
| Semester 6 | 27.5 |
| Semester 7 | 18.5 |
| Semester 8 | 5 |
| | |
| **Total Credits** | **166** |