# 5 Year Dual Degree B. Tech. (Computer Science & Engineering)+ M.Tech. / MBA

## Software Engineering

Effective from: 2015 -2016

## SEMESTER I

| Sr. No. | Courses Code | Courses | L-T-P | | Credits |
|---|---|---|---|---|---|
| 1 | CY101 | Engineering Chemistry | 3-1-0 | FC-C1 | 4 |
| 2 | MA101 | Engineering Mathematics – I | 3-1-0 | FC-C2 | 4 |
| 3 | ES 101 | Environmental studies | 2-1-0 | AECC1 | 3 |
| 4 | CS101 | Computer Programming – I | 2-0-0 | FC-C3 | 2 |
| 5 | EC101 | Basic Electronics | 2-1-0 | FC-C4 | 3 |
| 6 | EN101 | English Proficiency | 2-0-0 | AECC2 | 2 |
| 7 | SS101 | Human Values & Buddhist Ethics | 2-0-0 | AECC3 | 2 |
| 8 | CY103 | Engineering. Chemistry Lab | 0-0-2 | FC-C5 | 1 |
| 9 | CS 181 | Computer Programming Lab1 | 0-0-2 | FC-C6 | 1 |
| 10 | CE103 | Engineering Graphics | 0-0-3 | FC-C7 | 2 |
| 11 | EC181 | Basic Electronics Lab | 0-0-2 | FC-C8 | 1 |
| 12 | GP | General Proficiency | ------ | Non Credit | |
| | | Total Credits | | | 25 |
| | | Total Contact Hours | 16-4-9 | 29 | |

Ability Enhancement Compulsory Course (AECC):
1. EN101 English Proficiency
2. ES 101 Environmental studies
3. SS101 Human Values & Buddhist Ethics

## SEMESTER II

| Sr. No. | Courses Code | Courses | L-T-P | | Credits |
|---|---|---|---|---|---|
| 1 | PH102 | Engineering Physics | 3-1-0 | FC- C9 | 4 |
| 2 | MA102 | Engineering Mathematics – II | 3-1-0 | FC-C10 | 4 |
| 3 | ME 101 | Engineering Mechanics | 2-1-0 | FC-C11 | 3 |
| 4 | CS102 | Computer Programming – II | 2-0-0 | FC-C12 | 2 |
| 5 | EE102 | Electrical Technology | 2-1-0 | FC-C13 | 3 |
| 6 | HU102 | Professional Communication | 2-0-0 | AECC4 | 2 |
| 7 | -- | Open Elective 1 | 2-0-0 | OE 1 | 2 |
| 9 | PH104 | Engineering Physics Lab | 0-0-2 | FC-C14 | 1 |
| 10 | CS182 | Computer Programming Lab - II | 0-0-2 | FC-C15 | 1 |
| 11 | EE104 | Electrical Technology Lab | 0-0-2 | FC-C16 | 1 |
| 12 | ME102 | Engineering Workshop | 0-0-3 | FC-C17 | 2 |
| 13 | GP | General Proficiency | ------ | Non Credit | |
| | | Total Credits | | | 25 |
| | | Total Contact Hours | 16-4-9 | 29 | |

Ability Enhancement Compulsory Course (AECC):
1. HU 102 Professional Communication

Open Elective I (OE) : Courses offered from other school

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## Software Engineering

Effective from: 2015 -2016

## SEMESTER – III

| Sr. No. | Courses Code | Courses | L-T-P | | Credits |
|---|---|---|---|---|---|
| 1 | MA201 | Engineering Mathematics III | 3-1-0 | FC-C18 | 4 |
| 2 | EC201 | Digital Electronics | 3-0-0 | FC-C19 | 3 |
| 3 | CS201 | Internet Technology | 3-0-0 | C20 | 3 |
| 4 | CS203 | Operating Systems | 3-0-0 | C21 | 3 |
| 5 | CS205 | Data Structure & Algorithms | 2-1-0 | C22 | 3 |
| 6 | CS207 | System Analysis and Design | 3-0-0 | C23 | 3 |
| 7 | EC281 | Digital Electronics Lab | 0-0-3 | FC-C24 | 2 |
| 8 | CS281 | Internet Technology Lab | 0-0-3 | C25 | 2 |
| 9 | CS283 | Data Structure and Algorithms Lab | 0-0-3 | C26 | 2 |
| 10 | GP | General Proficiency | ------ | Non Credit | |
| | | Total Credits | | | 25 |
| | | Total Contact Hours | 17-2-9 | 28 | |

## SEMESTER – IV

| Sr. No. | Courses Code | Quantitative Techniques | L-T-P | | Credits |
|---|---|---|---|---|---|
| 1 | MA202 | Numerical and Statistical Analysis | 3-1-0 | C27 | 4 |
| 2 | EC210 | Principles of Communication | 2-1-0 | C28 | 3 |
| 3 | CS202 | Software Engineering | 3-0-0 | C29 | 3 |
| 4 | CS204 | Discrete Structure | 3-0-0 | FC-C30 | 3 |
| 5 | CS206 | Data Base Management System | 3-0-0 | C31 | 3 |
| 6 | CS208 | Principles of Programming Language | 2-0-0 | C32 | 2 |
| 7 | EC282 | Analog Communication Lab | 0-0-3 | C33 | 2 |
| 8 | CS282 | Software Engineering Lab | 0-0-3 | C34 | 2 |
| 9 | CS284 | Database Management System Lab | 0-0-3 | C35 | 2 |
| 10 | GP | General Proficiency | ------ | Non Credit | 0 |
| | | Total Credits | | | 24 |
| | | Total Contact Hours | 16-2-9 | 28 | |

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Software Engineering

## SEMESTER – V

| Sr. No. | Courses Code | Courses | L-T-P | | Credits |
|---|---|---|---|---|---|
| 1 | CS301 | Theory of Automata | 3-1-0 | C36 | 4 |
| 2 | CS303 | Web Development | 3-1-0 | C37 | 4 |
| 3 | CS305 | Computer Graphics | 2-1-0 | C38 | 3 |
| 4 | CS307 | Analysis and Design of Algorithms | 2-1-0 | C39 | 3 |
| 5 | CS309 | Computer Organization & Architecture | 3-0-0 | C40 | 3 |
| 6 | | Open Elective | 2-0-0 | OE2 | 2 |
| 7 | CS381 | Web Development Lab | 0-0-3 | C41 | 2 |
| 8 | CS383 | Computer Graphics Lab | 0-0-3 | C42 | 2 |
| 9 | GP | General Proficiency | ------ | Non Credit | |
| | | Total Credits | | | 23 |
| | | Total Contact Hours | 15-4-6 | 25 | |

Open Elective (OE):

1. CS311 Ecommerce
2. CE311 Engineering Economics

## SEMESTER – VI

| Sr. No. | Courses Code | Courses | L-T-P | | Credits |
|---|---|---|---|---|---|
| 1 | CS302 | Distributed Operating System | 3-1-0 | C43 | 4 |
| 2 | CS304 | Concepts of Artificial Intelligence | 3-0-0 | C44 | 3 |
| 3 | CS306 | Advanced Computer Architecture | 3-0-0 | C45 | 3 |
| 4 | CS308 | Computer Networks | 3-1-0 | C46 | 4 |
| 5 | EC304 | Microprocessor and Interfacing | 3-0-0 | C47 | 3 |
| 6 | CS 312 | Management Information System | 2-0-0 | SEC2 | 2 |
| 7 | EC384 | Microprocessor and Interfacing Lab | 0-0-3 | C48 | 2 |
| 8 | CS382 | Computer Networks Lab | 0-0-3 | C49 | 2 |
| 9 | GP | General Proficiency | ------ | Non Credit | |
| | | Total Credits | | | 23 |
| | | Total Contact Hours | 17-2-6 | 25 | |

Skill Enhancement Course (SEC):

1. CS312 Management Information System

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## SEMESTER – VII

| Sr. No. | Courses Code | Courses | L-T-P | | Credits |
|---|---|---|---|---|---|
| 1. | | Generic Elective | 3-1-0 | GE 1 | 4 |
| 2 | CS401 | Compiler Design | 3-0-0 | C50 | 3 |
| 3 | CS403 | Object-Oriented Analysis | 3-0-0 | C51 | 3 |
| 4 | | Elective 1 | 3-0-0 | DSE1 | 3 |
| 5 | | Elective 2 | 3-0-0 | DSE2 | 3 |
| 6 | CS481 | Compiler Design Lab | 0-0-3 | C52 | 2 |
| 7 | CS491 | Seminar | 0-0-2 | DP1 | 1 |
| 8 | CS493 | Minor Project | 0-0-8 | DP2 | 4 |
| 9 | GP | General Proficiency | ------ | Non Credit | |
| | | Total Credits | | | 23 |
| | | Total Contact Hours | 14-3-13 | | 30 |

| | | Electives | | | |
|---|---|---|---|---|---|
| 1. | CS405 | Formal Methods | | | |
| 2. | CS451 | Wireless Technologies | | | |
| 3. | EC405 | Wireless Mobile Communication | | | |
| 4. | EC443 | Telecommunication Security and Networks | | | |
| 5. | CS441 | Software project management. | | | |
| | | Any skill based course | | | |

Generic Elective (GEI)
1. MA406 Operation Research Techniques
2. MA507 Optimization Techniques
3. MA417 Number Theory

## SEMESTER VIII

| Sr. No | Courses Code | Courses | L-T-P | | Credits |
|---|---|---|---|---|---|
| 1 | | Generic Elective | 3-1-0 | GE2 | 4 |
| 2 | CS532 | Advanced Software Engineering | 3-0-0 | C53 | 3 |
| 3 | CS534 | Open Source Software Systems | 3-0-0 | C54 | 3 |
| 4 | CS536 | Object-Oriented Software Engineering | 3-0-0 | C55 | 3 |
| 5 | | Elective-3 | 3-0-0 | DSE3 | 3 |
| 6 | CS586 | Object-Oriented Software Engineering Lab | 0-0-3 | C56 | 2 |
| 7 | CS592 | Major Project | 0-0-10 | DP3 | 5 |
| 8 | GP | General Proficiency | ------ | Non Credit | |
| | | Total Credits | | | 23 |
| | | Total Contact Hours | 15-1-13 | | 29 |

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Effective from: 2014-2015~ 2016                             Software Engineering

| | | Elective 3 |
|---|---|---|
| 1 | CS542 | Software Architecture and Design |
| 3 | CS546 | Software Re-Engineering |
| 4 | CS548 | Software Reusability |
| 5 | CS550 | Web-Based Software Engineering |
| 6 | CS552 | Any skill based course by NSDC*credits will be decided when the course is run. |

## Generic Elective (GE2)
1. MA 402 Modeling and Simulation
2. MA416 Probability and Stochastic Process

| | | Summer Semester (After 8th Semester) | | |
|---|---|---|---|---|
| Sr. No. | Courses Code | Courses | L-T-P | Credits |
| 1 | CS490 | Summer Project / Industrial Training | DP4 | 5 |
| | | Total Credits | | 05 |
| | | Total Contact Hours | 4-6 week | |

### SEMESTER IX

| Sr. No. | Courses Code | Courses | L-T-P | | Credits |
|---|---|---|---|---|---|
| 1 | CS631 | Software Testing | 3-0-0 | C57 | 3 |
| 2 | CS633 | Component-Based Software Engineering | 3-0-0 | C58 | 3 |
| 3 | | Electives 4 | 3-0-0 | DSE 4 | 3 |
| 4 | CS655 | Industrial Practices in Software Engineering | 2-0-0 | DSE5 | 2 |
| 5 | CS683 | Industrial Practices in Software Engineering Lab | 0-0-6 | DSE6 | 3 |
| 6 | CS691 | Dissertation Part - I | 0-0-14 | DP5 | 7 |
| 7 | GP | General Proficiency | ------ | Non Credit | |
| | | Total Credits | | | 21 |
| | | Total Contact Hours | 12-0-17 | | 29 |

| | | Electives (4&5) |
|---|---|---|
| 1 | CS641 | Aspect-Oriented Software Engineering |
| 2 | CS643 | Software Reliability |
| 3 | CS645 | Software Quality Assurance |
| 4 | CS647 | Software Maintenance |
| 5 | CS649 | Software Performance |
| 6 | CS 651 | Software Measurement and Estimation |
| 7 | CS685 | Any skill based course by NSDC*credits will be decided when the course is run. |
| 8 | CS681 | Software testing lab |

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5-Year Dual Degree B. Tech. (Computer Science & Engineering)+ M.Tech. / MBA

Effective from: 2014 -2015 - 2016                              Software Engineering

## SEMESTER X

| Sr. No. | Courses Code | Courses | L-T-P | | Credits |
|---------|--------------|---------|-------|---|---------|
| 1 | CS690 | Dissertation Part – II | ------ | DP6 | 23 |
| | | | | | |
| 2 | GP | General Proficiency | ------ | Non Credit | |
| | | | Total Credits | | 23 |

GRAND TOTAL CREDITS = 240

Open Elective I (OE) Courses offered from other school

1. SS102 History of Science & Technology
2. BSC 201 Introduction to Buddhist Meditation: Theories & Practises
3. BSCU305 Buddhist Art & Architect

List of Electives
1. CS211 Fundamentals of IT
2. CS 554 IT for Managers
3. CS209 Basic Computer Skills
4. CS285 Computer Skills Lab.