CURRICULUM

(Scheme & Syllabi for First and Second semesters)

for

UNDERGRADUATE DEGREE COURSE

IN

 **ENGINEERING**

 (Common for All Branches)

## [w.e.f. 2018-19]

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DEENBANDHU CHHOTU RAM UNIVERSITY OF SCIENCE AND TECHONOLOGY

(Established Under Haryana Legislature Act NO. 29 of 2006)

Murthal-131039, Sonipat (Haryana)

www.dcrust.ac.in

**Deenbandhu Chhotu Ram University of Science & Technology, Murthal (Sonepat)**

**B.Tech. 1ST YEAR (SEMESTER – I) (Common for all branches)**

**Choice Based Credit System (Scheme Of Studies & Examinations w.e.f. 2018-19)**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **S. No.** | **Course Code** | **Course Title** | **Teaching Schedule** | **Marks of Class work** | **Examination Marks** | **TotalMarks** | **Credits** | **Duration of Exam** |
| **L** | **T** | **P** | **Theory** | **Practical** |
| 1 | HUM101C | ENGLISH LANGUAGE SKILLS **(Gr.-A)** | 2 | 0 | 0 | 25 | 75 | 0 | 100 | 2 | 3 |
| 2 |  | MATHEMATICS-I | 3 | 1 |  | 25 | 75 | 0 | 100 | 4 | 3 |
| 3 | CH101C | PHYSICS **(Gr.-A)****OR**CHEMISTRY **(Gr.-B)** | 3 | 1 |  | 25 | 75 | 0 | 100 | 4 | 3 |
| 4 | EE101CEE103CCSE101C  | BASIC ELECTRICAL ENGINEERING **(Gr.-A)****OR** ELECTRICAL AND ELECTRONICS ENGG (For CHE only) | 33 | 10 |  | 2525 | 7575 | 00 | 100100 | 43 | 3 |
| **OR** PROGRAMMING FOR PROBLEM SOLVING (**Gr.-B)** |
| 5 | ME101CME103C | ENGINEERING GRAPHICS & DESIGN **(Gr.-A)**ORWORKSHOP/ MANUFACTURING PRACTICES (**Gr.-B)** | 1 | 0 | 4 | 25 | 0 | 75 | 100 | 3 | 3 |
| 6 | HUM103C | ENGLISH LANGUAGE LAB (**Gr.-A)** | 0 | 0 | 2 | 25 | 0 | 75 | 100 | 1 | 3 |
| 7 | CH103C | PHYSICS LAB **(Gr.-A)****OR**CHEMISTRY LAB **(Gr.-B)** | 0 | 0 | 2 | 25 |  | 75 | 100 | 1 | 3 |
| 8 | EE181CEE183CCSE103C | BASIC ELECTRICAL ENGINEERING LAB**(Gr.-A)**/ELECTRICAL AND ELECTRONICS ENGG .LAB (For CHE only) **OR**PROGRAMMING FOR PROBLEM SOLVING LAB (**Gr.-B)** | 00 | 00 | 24 | 2525 |  | 7575 | 100100 | 12 | 3 |
| 9 | MC101C | INDUCTION PROGRAM\* | 6 | 0 | 0 | 25 | 75 | 00 | 100 | 0 | 1.5 |
|  **Total Gr.-A** **Gr.-B** | **18****16** | **3****2** | **10****10** | **225****175** | **375****300** | **300****225** | **900****700** | **20****17** |  |

**MATHEMATICS AND PHYSICS COURSES FOR DIFFERENT BRANCHES**

|  |  |
| --- | --- |
| **COURSE CODE** | **COURSE TITLE** |
| **MATHEMATICS –I** |
| MATHS101C | MATHEMATICS –I (For computer Science &Engg) |
| MATHS103C | MATHEMATICS –I (For Bio-technology) |
| MATHS105C | MATHEMATICS –I ( common for all branches except CSE & BT) |
| **PHYSICS and PHYSICS LAB (Any One Combination)** |
| PHY101CPHY111C | INTRODUCTION TO ELECTROMAGNETIC THEORYIEMT LAB (For ME, AE, Aero & ECE) |
| PHY103CPHY113C | MECHANICSMECHANICS LAB (For CE) |
| PHY105CPHY115C | OPTICS, FIBRE OPTICS, MAGNETISM AND QUANTUM MECHANICS OFMQ LAB (For CHE, BT &BME) |
| PHY107CPHY117C |  WAVES, OPTICS AND QUANTUM MECHANICSWAVES, OPTICS AND QUANTUM MECHANICS LAB (For EE) |
| PHY1O9CPHY119C | SEMICONDUCTOR PHYSICSSEMICONDUCTOR PHYSICS LAB (For CSE) |

**Note:**

1. \*Effective from the Academic Session 2019-20. Every student has to participate in the MANDATORY INDUCTION PROGRAM OF 07 working day DURATION at the start of regular teaching of first semester. It comprises physical activity, creative Arts, Universal Human Values, Literary, Proficiency Modules, Lectures by Eminent People, Visits to local Areas, Familiarization to Dept/ Branch & Innovations. The remaining equivalent of two weeks (14 days) will be covered during first semester and there will be an examination at semester end.
2. All the branches are to be divided into groups ‘A’ and ‘B’ as per the suitability of the institute/college, so that there is an equitable distribution of teaching load in odd and even semesters.

 For DCRUST Murthal: GROUP A: BME, BT, CSE, ECE. GROUP B: CE, CHE, EE, ME.

3. Induction Program Chief coordinator/ coordinators/Mentors shall be assigned a load of 2 hours per week.

4. For student admitted in B. Tech. 1st Semester (C-Scheme) in 2019 and all trailing students, Examinations and evaluation of students shall be conducted as per guidelines AICTE Examinations Reforms covering the entire syllabus. The students shall be made aware about the reforms.

**Deenbandhu Chhotu Ram University of Science & Technology, Murthal (Sonepat)**

**B.Tech. 1ST YEAR (SEMESTER – II) (Common for all branches)**

**Choice Based Credit System (Scheme Of Studies & Examinations w.e.f. 2018-19)**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **S. No.** | **Course Code** | **Course Title** | **Teaching Schedule** | **Marks of Class work** | **Examination Marks** | **Total Marks** | **Credits** | **Duration of Exam** |
| **L** | **T** | **P** | **Theory** | **Practical** |
| 1 | HUM101C | ENGLISH LANGUAGE SKILLS **(Gr.-B)** | 2 | 0 | 0 | 25 | 75 | 0 | 100 | 2 | 3 |
| 2 |  | MATHEMATICS-II | 3 | 1 |  | 25 | 75 | 0 | 100 | 4 | 3 |
| 3 | CH101C | PHYSICS **(Gr.-B)****OR**CHEMISTRY **(Gr.-A)** | 3 | 1 |  | 25 | 75 | 0 | 100 | 4 | 3 |
| 4 | EE101CEE103CCSE101C  | BASIC ELECTRICAL ENGINEERING **(Gr.-B)****OR** ELECTRICAL AND ELECTRONICS ENGG (For CHE only) | 33 | 10 |  | 2525 | 7575 | 00 | 100100 | 43 | 3 |
| **OR** PROGRAMMING FOR PROBLEM SOLVING (**Gr.-A)** |
| 5 | ME101CME103C | ENGINEERING GRAPHICS & DESIGN **(Gr.-B)**ORWORKSHOP/ MANUFACTURING PRACTICES (**Gr.-A)** | 1 | 0 | 4 | 25 | 0 | 75 | 100 | 3 | 3 |
| 6 | HUM103C | ENGLISH LANGUAGE LAB (**Gr.-B)** | 0 | 0 | 2 | 25 | 0 | 75 | 100 | 1 | 3 |
| 7 | CH103C | PHYSICS LAB **(Gr.-B)****OR**CHEMISTRY LAB **(Gr.-A)** | 0 | 0 | 2 | 25 |  | 75 | 100 | 1 | 3 |
| 8 | EE105C/ EE107CCSE103C | BASIC ELECTRICAL ENGINEERING LAB/ ELECTRICAL AND ELECTRONICS ENGG. LAB (For CHE only)**(Gr.-B)****OR**PROGRAMMING FOR PROBLEM SOLVING LAB (**Gr.-A)** | 00 | 00 | 24 | 2525 |  | 7575 | 100100 | 12 | 3 |
| 9 | \*Branch Code 102C | In-house Practical Training (level-1)\* |  |  |  | 100 |  |  |  | 1 |  |
|  **Total Gr.-B** **Gr.-A** | **12****10** | **3****2** | **10****10** | **300****250** | **300****225** | **300****225** | **800****600** | **21****18** |  |

**MATHEMATICS AND PHYSICS COURSES FOR DIFFERENT BRANCHES**

|  |  |
| --- | --- |
| **COURSE CODE** | **COURSE TITLE** |
| **MATHEMATICS –II** |
| MATHS102C | MATHEMATICS –II (For computer Science &Engg) |
| MATHS104C | MATHEMATICS –II (For Bio-technology) |
| MATHS106C | MATHEMATICS –II ( common for all branches except CSE & BT) |
| **PHYSICS and PHYSICS LAB (Any One Combination)** |
| PHY101CPHY111C | INTRODUCTION TO ELECTROMAGNETIC THEORYIEMT LAB (For ME, AE, Aero & ECE) |
| PHY103CPHY113C | MECHANICSMECHANICS LAB (For CE) |
| PHY105CPHY115C | OPTICS, FIBRE OPTICS, MAGNETISM AND QUANTUM MECHANICS OFMQ LAB (For CHE, BT &BME) |
| PHY107CPHY117C |  WAVES, OPTICS AND QUANTUM MECHANICSWAVES ,OPTICS AND QUANTUM MECHANICS LAB (For EE) |
| PHY1O9CPHY119C | SEMICONDUCTOR PHYSICSSEMICONDUCTOR PHYSICS LAB (For CSE) |

**Note:**

1. All the branches are to be divided into groups ‘A’ and ‘B’ as per the suitability of the institute/college, so that there is an equitable distribution of teaching load in odd and even semesters.
2. For DCRUST Murthal: GROUP A: BME, BT, CSE, ECE. GROUP B: CE, CHE, EE, ME.
3. \*Effective from Academic Session 2018-19. Each student has to participate in the mandatory Course In-HOUSE Training (Level-1) of 40 to 50 hours duration spread over 6 to 10 working days.
4. For student admitted in B. Tech. 1st Semester (C-Scheme) in 2019 and all trailing students, Examinations and evaluation of students shall be conducted as per guidelines AICTE Examinations Reforms covering the entire syllabus. The students shall be made aware about the reforms.

**MC101C Induction Program**

**B.TECH. (All ENGINEERING DISCIPLINES/ BRANCHES)**

**SEMESTER-I**

|  |  |  |
| --- | --- | --- |
| Credits | Class-work Marks | : 25 |
| 0 | Exam. Marks | : 75 |
|  | Total Marks | : 100 |
|  | Duration of Objective Type Examination | : 1.5 Hrs. |

**Course Outcomes**:

At the end of this course, students will demonstrate the ability to:

1. Understand self.
2. Inculcate Human Values.
3. Feel inspired for intensive & extensive studies, co-curriculars, career, & life.
4. Nurture a hobby.
5. Dismantle upsets quickly& move forward in life.

**Course Curriculum:**

* + - 1. Each student has to participate in the mandatory Audit (Non-credit) Course INDUCTION PROGRAM of 21 days.
			2. Out of these 21 days, initial 07 working days duration shall be dedicated solely to the Induction Program before the start of regular teaching of first semester.
			3. The remaining two weeks (14 working days) will be spread over the rest of first semester by allotting 6 periods per week (preferably 2 periods each on Tues., Wed. & Thurs.), however, these periods shall necessarily be in the same slots for all engineering disciplines / branches so that if a common activity is to be planned, the same may be effected / actualized at the Univ. / Institute level.
			4. Induction Program comprises of:
1. Physical Activities,
2. Creative Arts,
3. Mentoring And Universal Human Values (UHVs),
4. Literary Activities,
5. Proficiency Modules,
6. Lectures And Workshops by Eminent People,
7. Visits to local Areas,
8. Familiarization With Respective Dept./ Branch & Institute,
9. Co-Curricular Activities in Univ. / College.
10. Each student will maintain a Diary to jot down salient points & scribble associated points lest these may wither & wane away from memory, because each student has to clear an Objective Type Test at the end of this Audit Course.
11. Also, students may keep recording their feedback / rating, on a scale of 1 to 10, of each speaker/ session/ activity in their diary, to reproduce the same in feedback session. The Mentors of resp. groups & Activity In-charges shall from time to time sign on these diaries to monitor progress & attendance.
12. It is expected that students, while coming on to sports arenas, will come in proper sports attire (sports shoes, etc.). They may also carry, in a bag/ carry-bag, their formal dress for subsequent sessions.
13. Each ***Universal Human Values (U.H.V.) Discussion Group*** shall consist of 20 Students + 2 Senior Student Guides + 1 Faculty Mentor.
14. **Venue & Schedule:** For cost-effectiveness, the Venue for the Lectures, Proficiency Modules, & common activities, etc. may be kept as Convention Centre/ Auditorium of the Univ./ resp. Institute. The venue for dept.-specific activities may be decided by Chairpersons of resp. Depts. offering these modules.
15. Wake-up call for hostellers shall be from 6:30 a.m.-7:00 a.m. and they shall perform Physical Activities from 7:00 a.m. to 8:00 a.m. in the morning and also for 1 hour in the evening on each working day. If the schedule of Physical Activities for hostelers cannot be followed with rigor by all day-scholars, then a separate schedule for the same may be suitably worked out by the Univ. / resp. Institute.
16. **Evaluation Scheme:**
	* + 1. The Internal Assessment / Sessional / Class-work Marks shall be awarded for 25 marks by the mentor (for each group of about 20 students of respective branch/ discipline) based on candidate’s regularity, attendance, diary work, assignments & enthusiastic participation in various activities of the Induction Program. These marks shall be collected (from each of the mentors of a group of about 20 students of resp. branch) by the senior-most mentor (or by the Class In-charge of 1st Year of the concerned branch/ discipline, as decided by Univ./ concerned Institute) who may upload the Sessional / Internal Assessment / Class-work Marks on the Univ. portal.
			2. There will be an end-semester examination of 75 marks based on selected chapters of the Text Books / References, and the B.Tech. Ordinance of the Univ., and on the life and achievements of State & National Heroes.
			3. Any student failing in the Sessional / Class-work / Internal Assessment and / or in the end-semester examination of Induction Program shall have to reappear and pass as per provisions of the B.Tech. Ordinance.
17. Any student failing of the Induction Program shall have to Preparing for the Conduct of the Program:
18. Univ. / Each Institute may appoint a Faculty in-charge called Chief Coordinator, Induction Program, who shall prepare the Schedule of 1st Week & shall be responsible, along with his team (which shall necessarily include Faculty Mentors defined in this paragraph, besides other members), for its execution. Further, each Dept. may appoint one Faculty Mentor for each group of 20 first year students of each branch. The senior-most amongst such Faculty Mentors of a Dept. / branch (or the Class In-charge of 1st year of respective branch) shall, in association with other mentor(s), if any, of respective branch shall prepare, within the overall mandate of the Induction Program, the Schedule for the rest of the Semester & shall be responsible for its execution & also for Internal Assessment/ Class-work Marks award and upload. The Chief Coordinator may hold meetings of mentors periodically.
19. Training program(s) for Chief Coordinator & faculty mentors may be conducted by Univ./ resp. Institute on how to mentor students based on universal human values, & imparting holistic education & larger vision of life.

**Text Books / References:**

Dr. J.S. Saini, “A Pithy Guide for Induction Program”, Internal Report, DCRUST, Murthal, Sonipat (Haryana), 2019.

Rajeev Sangal, Gautam Biswas, Timothy Gonsalves, Pushpak Bhattacharya, “Motivating UG Students Towards Studies”, IIT Director’s Secretariat, IIT, Delhi, 2016.

“A Guide to Induction Program”, Model Curriculum for Undergraduate Degree Courses in Engineering & Technology, vol.-1, Jan. 2018.

“A Detailed Guide on Student Induction Program’, AICTE, Vasant Kunj, New Delhi, July 30, 2018.

R.R. Gaur, R. Sangal, G.P. Bagaria, “A Foundation Course in Human Values & Professional Ethics”, Pub.: Excel Books.

Chapters 1, 2, 3 & 17 of Joseph Murphy, “The Power of Your Sub-Conscious Mind”, Samaira Book Publishers, Ghaziabad, U.P. India (also available at [www.ichoosetoheal.com](http://www.ichoosetoheal.com)).

Dr. Spencer Johnson, “Who Moved My Cheese”, Vermillion Press.

Dr. Birender Hooda, “General Warm Up Exercise Structure And Cardiovascular Fitness Threshold of Training & Target Zones for Aerobic Exercise”, Internal Report, DCRUST, Murthal, 2018.

Dr. J.S. Saini, “Reading the Mind and Jogging the Brain (A Compilation)”, Internal Report, DCR Univ. of Sci. & Tech., 2019.

Dr. J.S. Saini, “Health System”, Internal Report, DCR Univ. of Sci. & Tech., 2019.

NOTES:

* + - 1. For the semester examination, 75 Objective Type Questions are to be set by the examiner, to be answered in 1.5 hours by the examinees. Each question shall carry 1 mark; there shall be no negative marking. The questions shall be set based on the clause 11(b).
			2. The students will be allowed to use non-programmable scientific calculator. However, programmable calculators, mobile phones or other electrical/ electronic items, and sharing / ex-change of calculators are prohibited in the examination.

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**Branch code102C In-HOUSE Training (Level-1)**

**B.TECH. (All ENGINEERING DISCIPLINES/ BRANCHES)**

**SEMESTER-I**

|  |  |  |
| --- | --- | --- |
| Credits | Class-work Marks | : 100 |
| 1 | Duration of Training | : 40-50 Hrs. |
|  | Total Marks | : 100 |

**Course Outcomes**:

At the end of this course, students will demonstrate the ability to:

1. Compose, edit, analyse various documents and presentations on a computer.
2. Get started with simulation of engineering systems via softwares, such as MATLAB, Labview, etc.
3. Understand basics of domestic and industrial electrical wiring, protective gears and safety measures.
4. Present PPT on a topic related to contemporary technology.

**Course Curriculum:**

* + - 1. Each student has to participate in the mandatory Course In-HOUSE Training (Level-1) of 40 to 50 hours duration spread over 6 to 10 working days.
			2. Each student will maintain a Diary to jot down salient points & scribble associated points lest these may wither & wane away from memory, because each student has to get the Diary regularly signed by the Training Coordinator.
			3. Chairperson of each Department may design the syllabus as per the need of students. Syllabi may be different for every Academic Year.
			4. A sample of the syllabi designed by Electrical Engg. Deptt. and Electronics & Communication Engg. is given below:

**EE102C In-HOUSE Training (Level-1)**

**B.TECH. (All ENGINEERING DISCIPLINES/ BRANCHES)**

**SEMESTER-I**

|  |  |  |
| --- | --- | --- |
| Credits | Class-work Marks | : 100 |
| 1 | Duration of Training | : 40-50 Hrs. |
|  | Total Marks | : 100 |

**UNIT-I**

**Basics of Electrical Wiring & Safety Measure**s

* + - 1. To visualise and understand functions of basic electrical components / gadgets/ protective gear/ relays, etc.
			2. To have hands-on experience of different electrical wiring schemes.

**UNIT-II**

**Basic Computer Skills**

* + - 1. To know and operate MS office, etc.
			2. To prepare a report in MS word on a topic related to contemporary technology and submit a bound report theron.
			3. To prepare a Power Point presentation on the above topic and present the same.

**UNIT-III**

**Computer Simulations**

* + - 1. To get conversant with ‘Getting Started Manual of MATLAB’ and to carry out some mathematical problem solving.
			2. To know Simulink of MATLAB and design some simple system(s) in SIMULINK.
			3. To have a basic idea of LABVIEW and its functionality.

**UNIT-IV**

**Instrumentation Circuit Making**

* + - 1. To get conversant with basic measuring instruments.
			2. To make a small PCB-based circuit.

**Evaluation Scheme:**

* + - 1. The Internal Assessment / Sessional / Class-work Marks shall be awarded for 100 marks by the Training Coordinator for respective branch/ discipline) based on candidate’s regularity, attendance, diary work, assignments & enthusiastic participation in various activities of the Training. These marks shall be collected (from each of the mentors of a group of about 20 students of resp. branch) by the senior-most mentor (or by the Class In-charge of 1st Year of the concerned branch/ discipline, as decided by Univ./ concerned Institute) who may upload the Sessional / Internal Assessment / Class-work Marks on the Univ. portal.
			2. Any student failing in the Sessional / Class-work / Internal Assessment of Training shall have to reappear and pass as per provisions of the B.Tech. Ordinance.

**ECE101C Practical Training (In-house)**

**B.Tech. 1st YEAR (SEMESTER –II)**

**Electronics & Communication Engineering**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| L | T | P | Credits | Class Work | : 100 |
| 0 | 0 | 0 | 1 | Examination | : - |
|  |  |  |  | Total |  : 100 |
|  |  |  |  | Duration of course | : 50 hrs. |

**Unit 1 (3 Days or 12-15 Hrs.)**

**Learning of Measuring Instruments:**

1. Study of electronics components and measuring instruments.
2. Components testing using measuring instruments.
3. Inter conversion of measuring instruments.

**Unit 2 (3 Days or 12-15 Hrs.)**

**PCB Designing:**

1. Study of soldering methods.
2. Study of steps involved in PCB making.
3. Design and construct a simple PCB circuit.
4. Component mounting on PCB.

**Unit 3 (2 Days or 8-12 Hrs.)**

**Computer Skill Development:**

1. M/S word
2. M/S excel
3. M/S power point

**Unit 4 (2 Days or 8-12 Hrs.)**

**MATLAB:**

1. Basic introduction to MATLAB.
2. Introduction to various commands of MATLAB and introduction to simple programme writing.

**Course Outcomes:** At the end of the course:

1. Students will be beforehand ready for the upcoming challenges in their advance syllabus.
2. With the practical exposure, students will be handling real world problems with more ease.
3. Being equipped with computer skills, will provide them with an additional edge.
4. Students will be aware of basics of MATLAB for future use.