



MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR

(A GOVT. AIDED UGC AUTONOMOUS & NAAC ACCREDITED INSTITUTE AFFILIATED TO RGPV, BHOPAL)

A PRESENTATION ON FLEXIBLE SCHEME STRUCTURE

*(PROVISIONS AVAILABLE INCLUDING HONOURS AND
MINOR SPECIALIZATION)*



AWARD OF UNDERGRADUATE (UG) DEGREE IN-

- **Bachelor of Technology (B. Tech)**
- **Bachelor of Technology + Honours**
- **Bachelor of Technology + Minor Specialization**



- For the award of Undergraduate (UG) degree in Technology (without Honours / Minor Specialization), it is required to earn **170 Credits**.
- Out of total **170 credits**, **34 Credits** can be earned through **SWAYAM / NPTEL / MOOC** platform based learning.
- Desirous student (at the time of commencement of V Semester) can opt for degree from following options:
 - (i) Honours in parent discipline or (ii) minor specialization in chosen track/area



Honours Degree (Engineering & Technology)

A B.Tech degree with “*Honours*” simply signifies academic excellence, indicating extra efforts in acquiring additional credits within the permitted duration of degree.

How to Get Honours Degree

- For getting an “Honours Degree”, additional **20** credits are required in the same field by the end of VIII semester (i.e. **170 + 20 = 190 credits**).
- These 20 additional credits to obtain “Honours Degree”, can be completed through SWAYAM /NPTEL / MOOC platform based learning. The course can be selected from the pool of courses displayed/finalized by the respective department (but, opted courses must be different from DC, DE & OC category courses) and each such course must be of minimum 2 credits.
- Student can opt for **maximum 02** additional courses in each semester (from V to VIII semester).

Honours with Minor Specialization

The student can opt for “*Minor Specialization*” (Minor Specialization in the offered areas of parent or any other specified discipline).

How to Get Degree of B.Tech with Minor Specialization

- For getting a “B.Tech degree with Minor Specialization”, additional **20** credits are required (i.e. **170 + 20 = 190 credits**).
- These 20 (additionally required) credits can be completed by opting courses through SWAYAM /NPTEL / MOOC platform based learning.
- These courses which must be opted from the pool of courses displayed/finalized by the respective department. These courses must be completed under the mentorship of faculty members). Each such Course must be of minimum 2 credits.
- Student can opt for **maximum 02** courses in each semester (from V to VIII semester).

Credit transfer for the courses from SWAYAM/NPTEL/MOOC platform

- Policy for credit equivalence & transfer for the courses opted from SWAYAM /NPTEL/University of Central Florida (UCF) /RGPV Bhopal/Institutional (MITS) MOOC/ other MOOC (Massive Open Online Courses) platforms, is as follows

Duration of Course	Credits
04 week course	01*
06 week course	02**
08 week course	03**
12 week course	04**

* *These courses can be offered only under seminar/self-study/professional development purposes.*

** *These courses can be offered under DEs/ OCs and additional courses (for Honours /Minor Specialization).*

Audit Courses

The two Mandatory Courses (MC), as Audit Courses:

1. **Biology for Engineers** (for Group A/B in III/IV semester respectively).
2. **Indian Constitution & Traditional Knowledge** (for Group A/B in V/VI semester respectively).

GROUP A: (Electrical, Electronics, Computer Science & Engineering, Information Technology, Electronics & Telecommunication)

GROUP B: (Civil, Mechanical, Chemical, Biotech, Automobile)

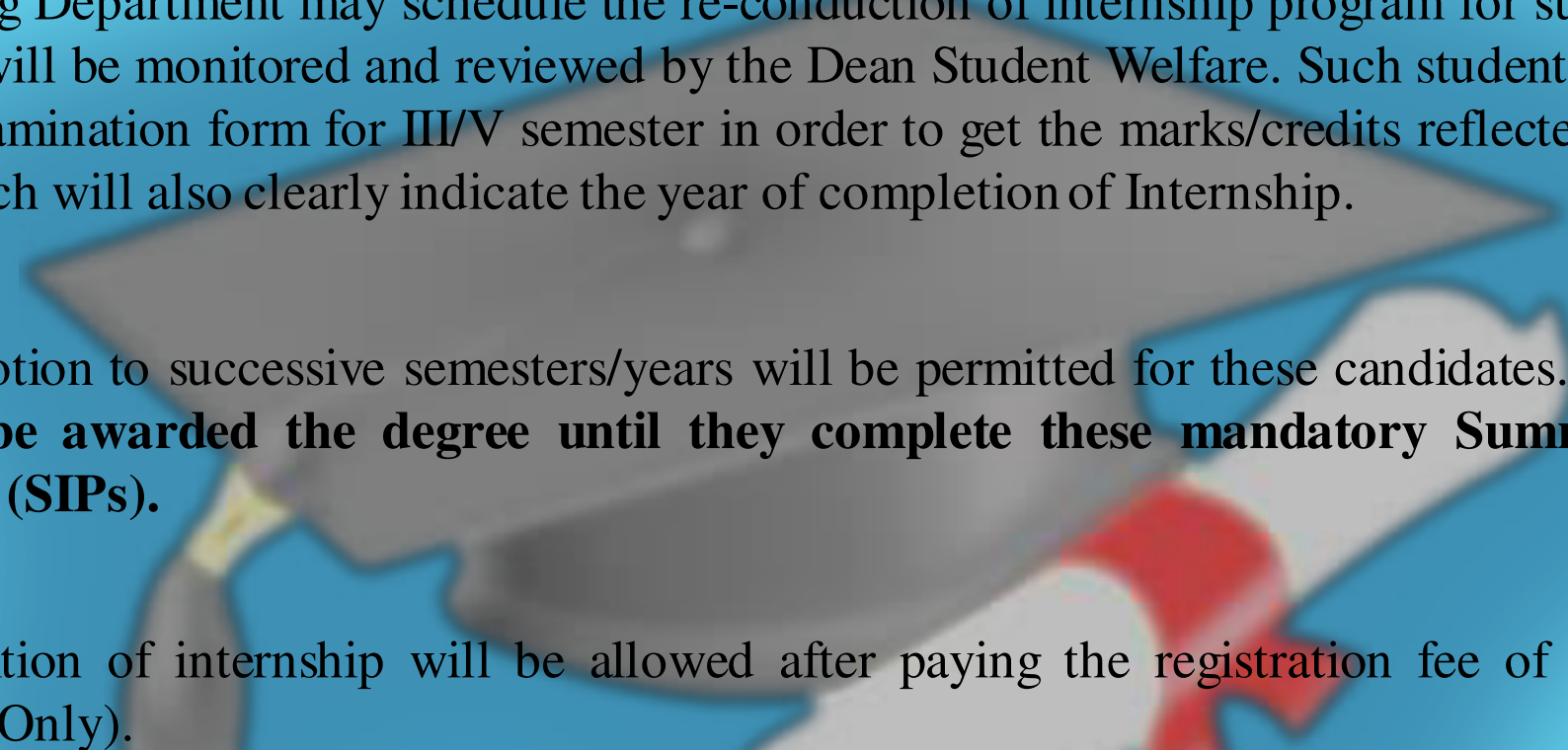
- Auditing a course allows a student to take a class without the benefit of a grade or credit, for the sole purposes of self-enrichment and academic exploration.
- In Audit Courses passing is optional; however a separate mark sheet will be issued to those who qualify

Guidelines for Evaluating Mandatory Summer Internship Programs (SIP-I & SIP-II)

The evaluation of mandatory summer internship programs (weightage given in the End Semester part of practical slot of scheme) as follows:

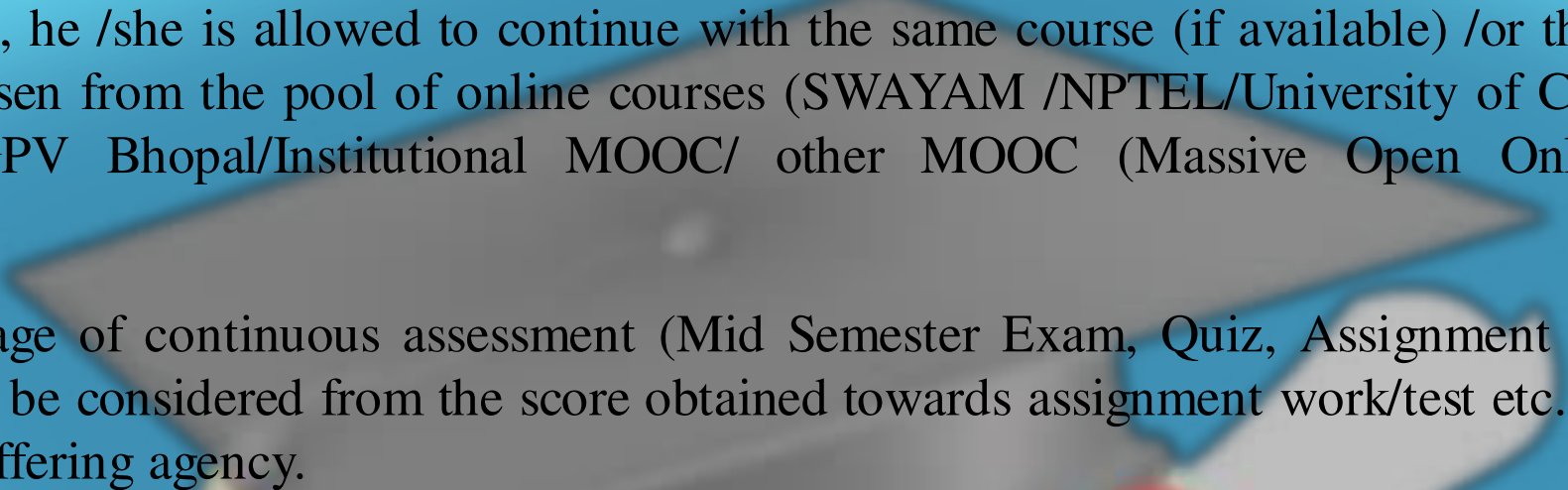
- *For SIP-I*, in III semester: 25 marks, 2 credits in the End Semester part of practical slot
- *For SIP-II*, in V semester: 25 marks, 3 credits in the End Semester part of practical slot

S. No.	Course	Minimum Hours	Year (in which Internship to be offered)	Evaluation
1.	Summer Internship Project-I (Institute Level)	60 Hours	First Year	III Semester (02 Credits)
2.	Summer Internship Project-II (Soft Skills)	90 Hours	Second Year	V Semester (03 Credits)
3.	Summer Internship Project - III (On Job Training)	150 Hours	Third Year	VII Semester (02 Credits)

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- In case, a student fails to appear (due to valid cause) / acquire minimum score, the Head of Concerning Department may schedule the re-conduction of internship program for such students and the same will be monitored and reviewed by the Dean Student Welfare. Such students are required to fill the examination form for III/V semester in order to get the marks/credits reflected in their mark-sheet, which will also clearly indicate the year of completion of Internship.
 - The promotion to successive semesters/years will be permitted for these candidates. **However, they will not be awarded the degree until they complete these mandatory Summer Internship programs (SIPs).**
 - The repetition of internship will be allowed after paying the registration fee of Rs.1000/- (One Thousand Only).

Departmental Elective (DEs) and Open Category Courses (OCs)

- The list of Departmental/Open Elective Courses (DEs /OCs) will be prepared well in advance and make the list public among the students, possibly in the previous semester itself for preference based registration process.
- In order to run an Elective (DE) course, the registration of about 30% students of sanctioned class intake is the minimum requirement. The limit of batch size is about 60% of sanctioned class intake. The allotment will be based on First Come First Serve (FCFS) basis.
- The Open Category (OC) course will be open for students of departments other than the offering (parent) department. Moreover, there will be no pre-requisite for Open Category Courses.
- The allotment of Open Elective Courses will be based on First Come First Serve (FCFS) basis.
- In order to run an Open Elective Course (OC), the registration of about 5% students of sanctioned batch size is the minimum requirement. The limit of batch size is about 10% of sanctioned batch size.

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- In case, if any student fails to earn credits for DE courses (opted from online platforms) in his/her first attempt, he /she is allowed to continue with the same course (if available) /or the new course may be chosen from the pool of online courses (SWAYAM /NPTEL/University of Central Florida (UCF) /RGPV Bhopal/Institutional MOOC/ other MOOC (Massive Open Online Courses) platforms).
 - The weightage of continuous assessment (Mid Semester Exam, Quiz, Assignment etc.) for such courses will be considered from the score obtained towards assignment work/test etc. conducted by the course offering agency.

Industry Collaborative Courses

- Each department will run at least one of the Departmental Elective (DE) courses as “Industry Collaborative Course”.
- The course content coverage of at least one (01) Credit (i.e. about 30-40 % of total course content in around 10-12 lecture hours) is to be covered by the collaborator / industry expert and remaining part by the internal department faculty.
- The internal faculty member will coordinate with industrial person for continuous assessment and final evaluation purpose.

Guidelines for evaluating “Professional Development”

PERFORMANCE METRICS		
Categories	Suggestive Activities	Marks Assigned
Institute Level* (C1)	Participation in Institute level technical events such as quizzes, extemporary, debate, student volunteers, seminar, professional society local chapters (IET,IEEE,ISTE,IETE),NCC, etc.	02 Marks for each participation (maximum 06)
State Level* (C2)	Participation in State level technical events such as Robotics, Coding challenge, Cultural cum technical fest, technical symposium, volunteers, hackathon, sports etc.	03 marks for each participation (Maximum 09)
National level* (C3)	Participate in National level events such as hands on workshop, national level seminar, national conference, Entrepreneurship, model making, techno culture fest, national youth festival, research conclave, project competition, volunteers, sports festival etc.	05 marks for each participation (Maximum 15)
MOOC’s** (C4)	Successfully completed technical certification course in any MOOC’s platform such as (NPTEL/SWAYAM/EdX/Coursera/Class Central etc)	10 marks for each course (Maximum 20)
Evaluation		
Formula for evaluation in VIII Semester		Marks Scored (Out of 50)
$(C1 \times 2 + C2 \times 3 + C3 \times 5 + C4 \times 10) =$		

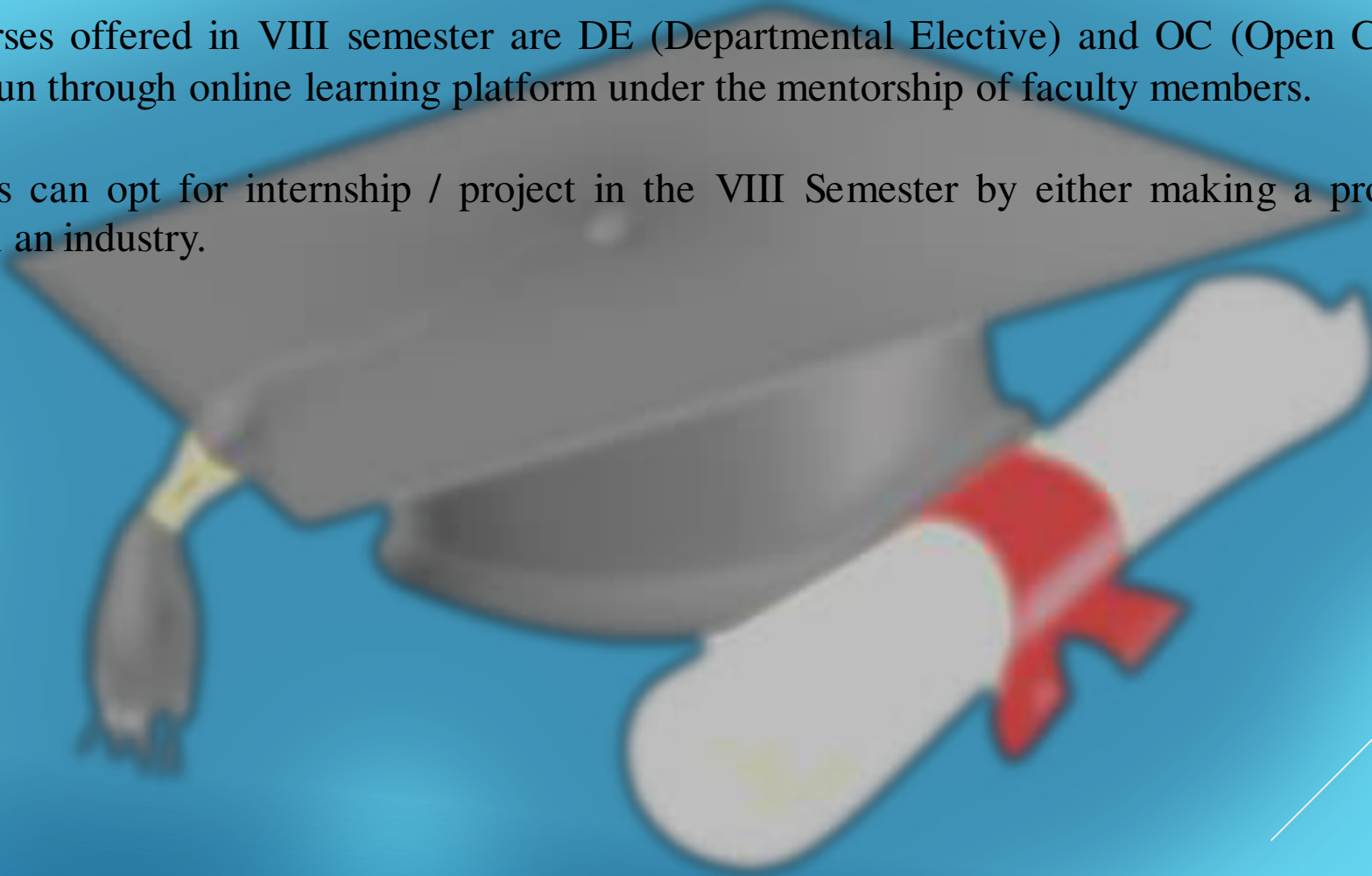
- If a student or group of students win a competition in the above three categories (Institute level/ State level /National level etc.) then maximum marks in the respective category will be awarded to such students.

* *Student must produce a certificate as a proof for each activity.*

** *Courses must be additional, not the ones for which credits are already earned by the student during academics (from I-VIII semester).*

Provision of Internship / Project

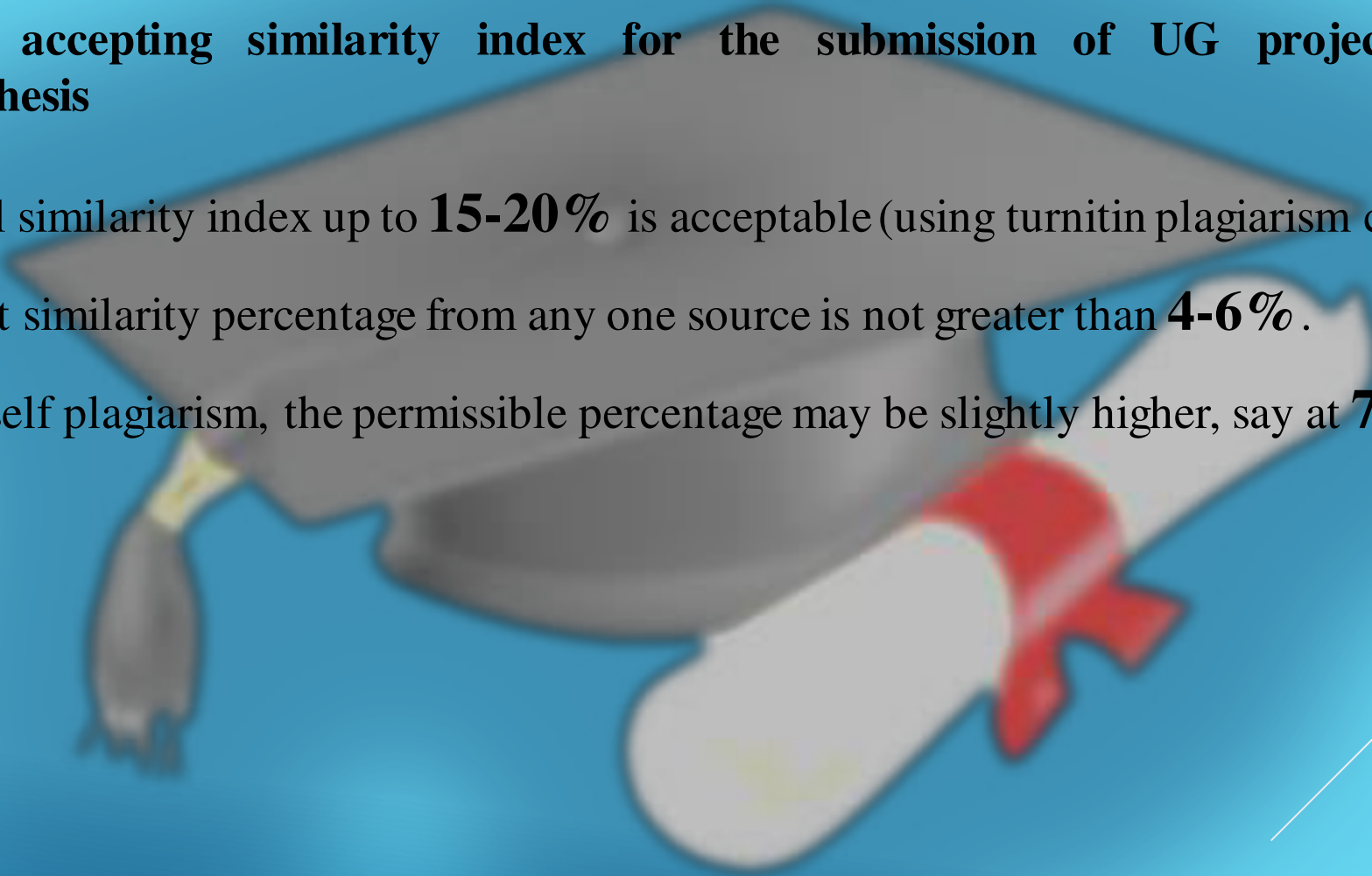
- All the courses offered in VIII semester are DE (Departmental Elective) and OC (Open Category) courses, which will run through online learning platform under the mentorship of faculty members.
- The students can opt for internship / project in the VIII Semester by either making a project or by doing internship in an industry.



Academic Integrity

Criteria for accepting similarity index for the submission of UG project report/ PG dissertation/thesis

- The overall similarity index up to **15-20%** is acceptable (using turnitin plagiarism check software).
- The highest similarity percentage from any one source is not greater than **4-6%**.
- In case of self plagiarism, the permissible percentage may be slightly higher, say at **7-10%**.



Scheme of Examination (B.Tech.)

B.Tech. GROUP A: I Semester & GROUP B: II Semester for batch admitted in Academic Session 2017-18

S. No.	Subject Code	Category	Subject Name	Maximum Marks Allotted					Total Marks	Contact Hours per week			Total Credits
				Theory Slot			Practical Slot			L	T	P	
				End Sem.	Mid Sem Exam.	Quiz/ Assignment	End Sem.	Lab work & Sessional					
1.	100201	BSC	Engineering Physics (BSC-1)	70	20	10	30	20	150	4	1	2	6
2.	100202	HSMC	Energy, Environment, Ecology & Society (HSMC-1)	70	20	10	-	-	100	4	1	-	5
3.	100203	ESC	Basic Computer Engineering (ESC-1)	70	20	10	30	20	150	4	1	2	6
4.	100204	ESC	Basic Mechanical Engineering (ESC-2)	70	20	10	30	20	150	4	1	2	6
5.	100205	ESC	Basic Civil Engineering & Mechanics (ESC-3)	70	20	10	30	20	150	4	1	2	6
6.	100206	HSMC	Language Lab. & Seminars (HSMC-2)	-	-	-	30	20	50	-	-	2	1
Total				350	100	50	150	100	750	20	5	10	30
Induction Programme of first three weeks (MC): Physical activity, Creative Arts, Universal Human Values, Literary, Proficiency Modules, Lectures by Eminent People, Visits to local Areas, Familiarization to Dept./Branch & Innovations													

GROUP A: (Electrical, Electronics, **Computer Science & Engineering**, Information Technology, Electronics & Telecommunication)

GROUP B: (Civil, Mechanical, Chemical, Biotech, Automobile)

01 Theory Period=1 Credit; 02 Practical Periods =1 Credit

Scheme of Examination (B.Tech.)

B.Tech. GROUP A: I Semester & GROUP B: II Semester for batch admitted in Academic Session 2017-18

S. No.	Subject Code	Category	Subject Name	Maximum Marks Allotted					Total Marks	Contact Hours per week			Total Credits
				Theory Slot			Practical Slot			L	T	P	
				End Sem.	Mid Sem.	Quiz/ Assignment	End Sem.	Lab work & Sessional					
1.	100101	BSC	Engineering Chemistry (BSC-2)	70	20	10	30	20	150	4	1	2	6
2.	100102	BSC	Engineering Mathematics-I (BSC-3)	70	20	10	-	-	100	4	1	-	5
3.	100103	HSMC	Technical English (HSMC-3)	70	20	10	30	20	150	4	1	2	6
4.	100104	ESC	Basic Electrical & Electronics Engineering (ESC-4)	70	20	10	30	20	150	4	1	2	6
5.	100105	ESC	Engineering Graphics (ESC-5)	70	20	10	30	20	150	4	1	2	6
6.	100106	ESC	Manufacturing Practices (ESC-6)	-	-	-	30	20	50	-	-	2	1
Total				350	100	50	150	100	750	20	5	10	30
Summer Internship Project –I (Institute Level) (Qualifier): Minimum two-week duration													

GROUP A: (Electrical, Electronics, **Computer Science & Engineering**, Information Technology, Electronics & Telecommunication)

GROUP B: (Civil, Mechanical, Chemical, Biotech, Automobile)

01 Theory Period=1 Credit; 02 Practical Periods =1 Credit

Scheme of Examination

B. Tech. III Semester (Computer Science & Engineering) for batch admitted in Academic Session 2017-18

S. No.	Subject Code	Category	Subject Name	Maximum Marks Allotted					Total Marks	Contact Hours per week			Total Credits
				Theory Slot			Practical Slot			L	T	P	
				End Sem.	Mid Sem. Exam.	Quiz/ Assignment	End Sem	Term work					
								Lab Work & Sessional					
1.	100001	BSC	Mathematics-II (BSC-4)	70	20	10	-	-	100	3	1	-	4
2.	150301	DC	Digital Electronics (DC-1)	70	20	10	-	-	100	3	1	-	4
3.	150302	DC	Data Structures (DC-2)	70	20	10	30	20	150	3	-	2	4
4.	150303	DC	Computer Graphics (DC-3)	70	20	10	30	20	150	3	-	2	4
5.	150304	DC	Object Oriented Programming & Methodology (DC-4)	70	20	10	30	20	150	3	-	2	4
6.	150305	DLC	Hardware Lab* (DLC-1)	-	-	-	30	20	50	-	-	2	1
7.	150306	SEMINAR/ SELF STUDY	Self-learning/Presentation (SWAYAM/NPTEL/MOOC)#	-	-	-	-	25	25	-	-	2	1
8.	150307	DLC	Summer Internship Project –I (Institute Level) (Evaluation)	-	-	-	25	-	25	-	-	4	2
Total				350	100	50	145	105	750	15	2	14	24
9.	100002 [§]	MC	Biology for Engineers (Audit Course) (MC)	70	20	10	-	-	100	3	-	-	-
NSS/NCC				Qualifier									

Compulsory registration for one online course using SWAYAM/NPTEL/MOOC, evaluation through attendance, assignments and presentation.

§ Course will run for Group A/B in III/IV semester respectively (Passing is optional, however a separate mark sheet will be issued to those who qualify)

*Virtual Lab to be conducted along with the traditional lab

GROUP A: (Electrical, Electronics, **Computer Science & Engineering**, Information Technology, Electronics & Telecommunication)

GROUP B: (Civil, Mechanical, Chemical, Biotech, Automobile)

01 Theory Period = 1 Credit; 02 Practical Periods = 1 Credit

Scheme of Examination

B. Tech. IV Semester (Computer Science & Engineering) for batch admitted in Academic Session 2017-18

S. No.	Subject Code	Category	Subject Name	Maximum Marks Allotted					Total Marks	Contact Hours per week			Total Credits
				Theory Slot			Practical Slot			L	T	P	
				End Sem.	Mid Sem. Exam.	Quiz/ Assignment	End Sem.	Term work					
								Lab Work & Sessional					
1.	100003	BSC	Mathematics- III (BSC-5)	70	20	10	-	-	100	2	2	-	4
2.	150401	DC	Design & Analysis of Algorithms (DC-5)	70	20	10	30	20	150	2	1	2	4
3.	150402	DC	Database Management System (DC-6)	70	20	10	30	20	150	2	1	2	4
4.	150403	DC	Operating System (DC-7)	70	20	10	-	-	100	3	1	-	4
5.	150404	DC	Computer System Organization (DC-8)	70	20	10	-	-	100	3	1	-	4
6.	100004	MC	Cyber Security (MC)	70	20	10	-	-	100	2	1	-	3
7.	150405	DLC	Programming Lab* (DLC-2)	-	-	-	30	20	50	-	-	4	2
Total				420	120	60	90	60	750	14	7	8	25
NSS/NCC				Qualifier									
Summer Internship Project-II (SoftSkills Based) for two weeks duration: Evaluation in V Semester													

* Virtual Lab to be conducted along with the traditional lab

Scheme of Examination

B. Tech. V Semester (Computer Science & Engineering) for batch admitted in Academic Session 2017-18

S. No.	Subject Code	Category	Subject Name	Maximum Marks Allotted					Total Marks	Contact Hours per week			Total Credits
				Theory Slot			Practical Slot			L	T	P	
				End Sem.	Mid Sem Exam.	Quiz/ Assignment	End Sem.	Lab work & Sessional					
1.	100005*	HSMC	Ethics, Economics, Entrepreneurship & Management (HSMC- 4)	70	20	10	-	-	100	2	-	-	2
2.	150501	BSC	Discrete Structures (BSC – 6)	70	20	10	-	-	100	2	1	-	3
3.	150502	DC	Software Engineering (DC-09)	70	20	10	30	20	150	2	-	2	3
4.	150503	DC	Theory of Computation (DC-10)	70	20	10	30	20	150	2	-	2	3
5.	150504	DC	Microprocessor & Interfacing (DC-11)	70	20	10	30	20	150	2	-	2	3
6.	150505	DLC	Minor Project-I ** (DLC-4)	-	-	-	30	20	50	-	-	2	1
7.	150506	DLC	Summer Internship Project-II (Evaluation) (DLC-5)	-	-	-	25	-	25	-	-	4	2
8.	150507	SEMINAR/ SELF STUDY	Self-learning/Presentation (SWAYAM/NPTEL/ MOOC) #	-	-	-	-	25	25	-	-	2	1
Total				350	100	50	145	105	750	10	1	14	18
9.	100006 [§]	MC	Indian Constitution & Traditional Knowledge (Audit Course) (MC)	70	20	10	-	-	100	3	-	-	-

Department level activity/workshop/awareness Programme to be conducted.

Additional Courses for obtaining Honours/Minor Specialization by desirous students	Permitted to opt for maximum two additional courses for the award of (i) B.Tech with Honours in parent discipline or (ii) B.Tech with Minor Specialization
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* Group A/B programmes will offer this course in V/VI Semester respectively.

[§] Group A/B programmes will offer this course in V/VI Semester respectively. (Passing is optional, however a separate mark sheet will be issued to those who qualify)

** The minor project-I may be evaluated by an internal committee for awarding sessional marks.

[#] Compulsory registration for one online course using SWAYAM/NPTEL/ MOOC, evaluation through attendance, assignments and presentation

Scheme of Examination

B. Tech. VI Semester (Computer Science & Engineering) for batch admitted in Academic Session 2017-18

S. No.	Subject Code	Category	Subject Name	Maximum Marks Allotted					Total Marks	Contact Hours per week			Total Credits
				Theory Slot			Practical Slot			L	T	P	
				End Sem.	Mid Sem Exam.	Quiz/ Assignment	End Sem.	Lab work & Sessional					
1.	150601	DC	Compiler Design (DC-12)	70	20	10	30	20	150	2	-	2	3
2.	150602	DC	Computer Networks (DC-13)	70	20	10	-	-	100	2	1	-	3
3.	150603	DE	DE* (DE-1)	70	20	10	-	-	100	2	-	-	2
4.	150604	DE	DE* (DE-2)	70	20	10	-	-	100	2	-	-	2
5.	150605	OC	OC-1*	70	20	10	-	-	100	2	-	-	2
6.	100007	MC	Disaster Management (MC)	70	20	10	-	-	100	2	-	-	2
7.	150606	DLC	Minor Project-II (DLC-5)	-	-	-	50	50	100	-	-	4	2
Total				420	120	60	80	70	750	12	1	6	16
Summer Internship-III (On Job Training) for Four weeks duration: Evaluation in VII Semester													
Additional Courses for obtaining Honours/Minor Specialization by desirous students				Permitted to opt for maximum two additional courses for the award of (i) B.Tech with Honours in parent discipline or (ii) B.Tech with Minor Specialization									

* At least one of these courses must be run through SWAYAM/NPTEL/ MOOC

Scheme of Examination

B. Tech. VII Semester (Computer Science & Engineering) for batch admitted in Academic Session 2017-18

S. No.	Subject Code	Category	Subject Name & Title	Maximum Marks Allotted					Total Marks	Contact Hours per week			Total Credits
				Theory Slot			Practical Slot			L	T	P	
				End Sem.	Mid Sem. Exam	Quiz/ Assignment	End Sem.	Term Work					
								Lab Work & Sessional					
1.	150701	DE	DE-3	70	20	10	-	-	100	2	-	-	2
2.	150702	DE	DE-4*	70	20	10	-	-	100	2	-	-	2
3.	150703	OC	OC-2	70	20	10	-	-	100	2	1	-	3
4.	150704	OC	OC-3	70	20	10	-	-	100	3	-	-	3
5.	100008	MC	Intellectual Property Rights (IPR) (MC)	70	20	10	-	-	100	2	-	-	2
6.	150705	DLC	Departmental Lab (DLC-6)	-	-	-	50	50	100	-	-	4	2
7.	150706	DLC	Summer Internship Project-III (04 weeks) (Evaluation) (DLC-7)	-	-	-	50	50	100	-	-	4	2
8.	150707	DLC	Creative Problem Solving (Evaluation) (DLC-8)	-	-	-	25	25	50	-	-	2	1
Total				350	100	50	125	125	750	11	1	10	17
Additional Courses for obtaining Honours/Minor Specialization by desirous students				Permitted to opt for maximum two additional courses for the award of (i) B.Tech with Honours in parent discipline or (ii) B.Tech with Minor Specialization									

* This course must be run through SWAYAM/NPTEL/ MOOC

Scheme of Examination

B. Tech. VIII Semester (Computer Science & Engineering) for batch admitted in Academic Session 2017-18

S. No.	Subject Code	Category	Subject Name & Title	Maximum Marks Allotted					Total Marks	Contact Hours per week			Total Credits
				Theory Slot			Practical Slot			L	T	P	
				End Sem.	Mid Sem. Exam	Quiz/ Assignment	End Sem.	Term Work					
								Lab Work & Sessional					
1.	150801	DE	DE-5*	70	20	10	-	-	100	2	-	-	2
2.	150802	OC	OC-4*	70	20	10	-	-	100	2	-	-	2
3.	150803	OC	OC-5*	70	20	10	-	-	100	2	-	-	2
4.	150804	DLC	Internship/Project (DLC-9)	-	-	-	250	150	400	-	-	6	3
5.	150805	-	Professional Development [#]	-	-	-	-	50	50	-	-	2	1
Total				210	60	30	250	200	750	6	-	8	10
Additional Courses for obtaining Honours/Minor Specialization by desirous students				Permitted to opt for maximum two additional courses for the award of (i) B.Tech with Honours in parent discipline or (ii) B.Tech with Minor Specialization									

*All of these courses will run through SWAYAM/NPTEL/MOOC

[#] Evaluation will be based on participation/laurels brought by the students to the institution in national/state level technical and other events during the complete tenure of the UG Programme (participation in professional chapter activities, club activities, cultural events, sports, personality development activities, collaborative events, MOOCs and technical events)

WITH BEST WISHES...



THANK YOU!