

# Smjernice BRACKET platforme za e-učenje

Projekt:

Poticanje novog i inovativnog pristupa osposobljavanju u području ključnih naprednih tehnologija BRACKET

# BRACKET

Partneri na projektu

IRMO



Centro Tecnológico  
del Muñido y la Minería  
de la Región de T

CETEM eurofortis

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# BRACKET

## Svrha dokumenta

Smjernice BRACKET platforme za e-učenje razvijene u okviru projekta BRACKET (Poticanje novog i inovativnog pristupa osposobljavanju u području ključnih naprednih tehnologija, br. 2018-1-HR01-KA202-047493) predstavljaju skup preporuka o tehničkom razvoju i korištenju mrežne platforme. Sadrže informacije o korištenju platforme, ali i informacije o svim sastavnim elementima i dijelovima. U Smjernicama se uz opise nalaze i vizualni elementi koji olakšavaju razumijevanje i shvaćanje koraka koje treba slijediti nakon pristupa platformi. Smjernice su napisane i za profesionalce i ostale odrasle korisnike, stoga se upute odnose na obje spomenute kategorije korisnika.

## Smjernice BRACKET platforme za e-učenje

### A. Uvod u BRACKET tečaj e-učenja

BRACKET tečaj e-učenja dizajniran je za savladavanje materijala za osposobljavanje povezanih s ključnim naprednim tehnologijama u cilju poboljšanja strukovnog obrazovanja i osposobljavanja. Sastoji se od pet nastavnih jedinica:

**Jedinica 1** - *Uvod u ključne napredne tehnologije*

**Jedinica 2** - *Nanotehnologija*

**Jedinica 3** - *Biotehnologija*

**Jedinica 4** - *Napredni materijali*

**Jedinica 5** – *Inovacije ključnih naprednih tehnologija*

Dizajn i primjena platforme za e-učenje i posebni ciljni skupina pažljivo su analizirani (uzeti su u obzir studenti, djelatnici koji rade u tehnološkoj industriji i poduzetnici s ciljem usmjeravanja svoje profesije u tehnološke inovacije i istraživanja). Također se pretpostavilo da platformu neće koristiti samo profesionalci, već i odrasle osobe koje posjeduju različite razine digitalnih kompetencija. Kao rezultat toga, e-učenje je dizajnirano na način da korisnicima pojednostavi sudjelovanje u svim dostupnim dijelovima platforme. Štoviše, sadržaj je dostupan na nekoliko jezika: engleskom, hrvatskom, grčkom, latvijskom, poljskom, slovenskom i španjolskom.

Da biste pristupili platformi, idite na <https://bracket.erasmus.site/mooc/>

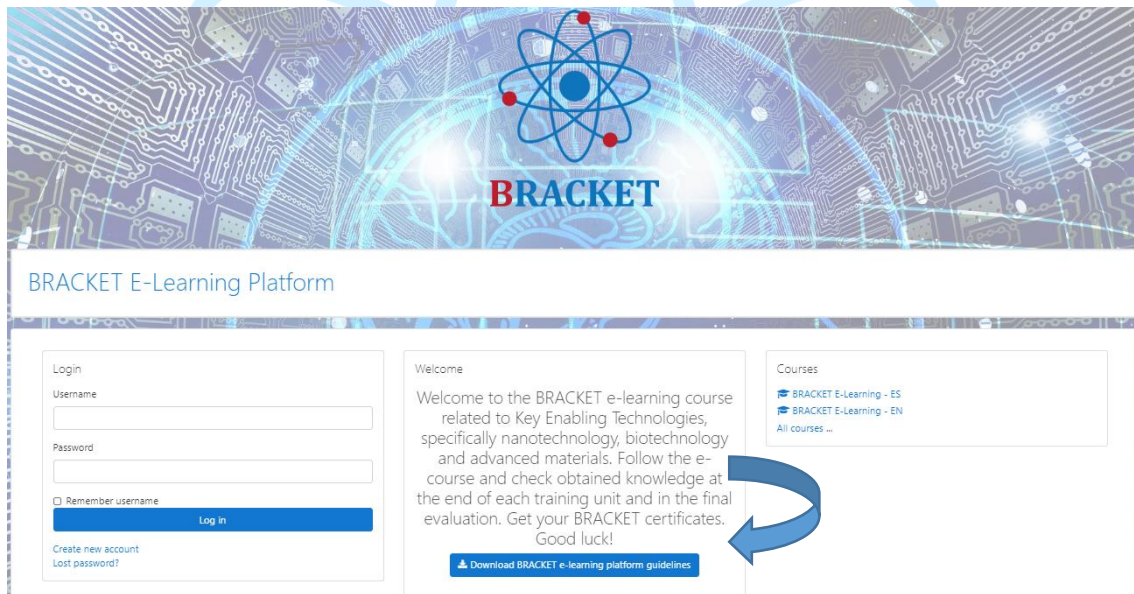
Također, platformi možete pristupiti putem linka BRACKET E-LEARNING na [web stranici projekta](#).

Sljedeće upute predstaviti će sve dijelove platforme za e-učenje te opisati kako iskoristiti sve funkcije.

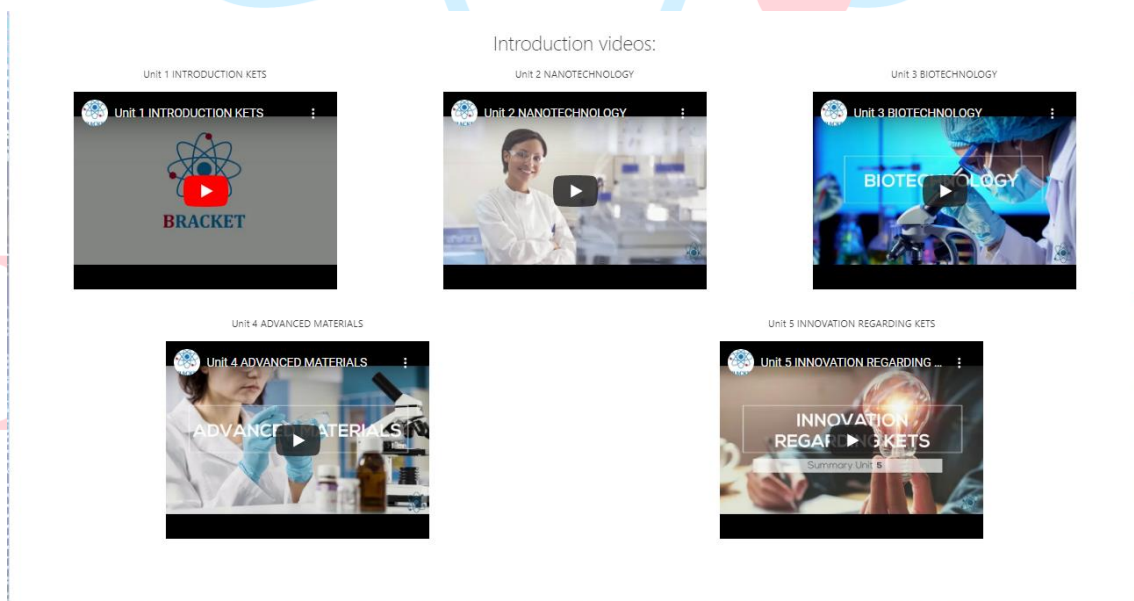
## B. Upute za korištenje BRACKET platforme za e-učenje

### Dijelovi dostupni bez registracije

Nakon što pristupite [početnoj stranici tečaja za e-učenje](#) vidjet ćete nekoliko dionica od kojih već možete imati koristi. Prvi dio koji bi vas mogao zanimati je dio "Dobrodošli" u kojem su ove smjernice BRACKET platforme za e-učenje dostupne za preuzimanje.



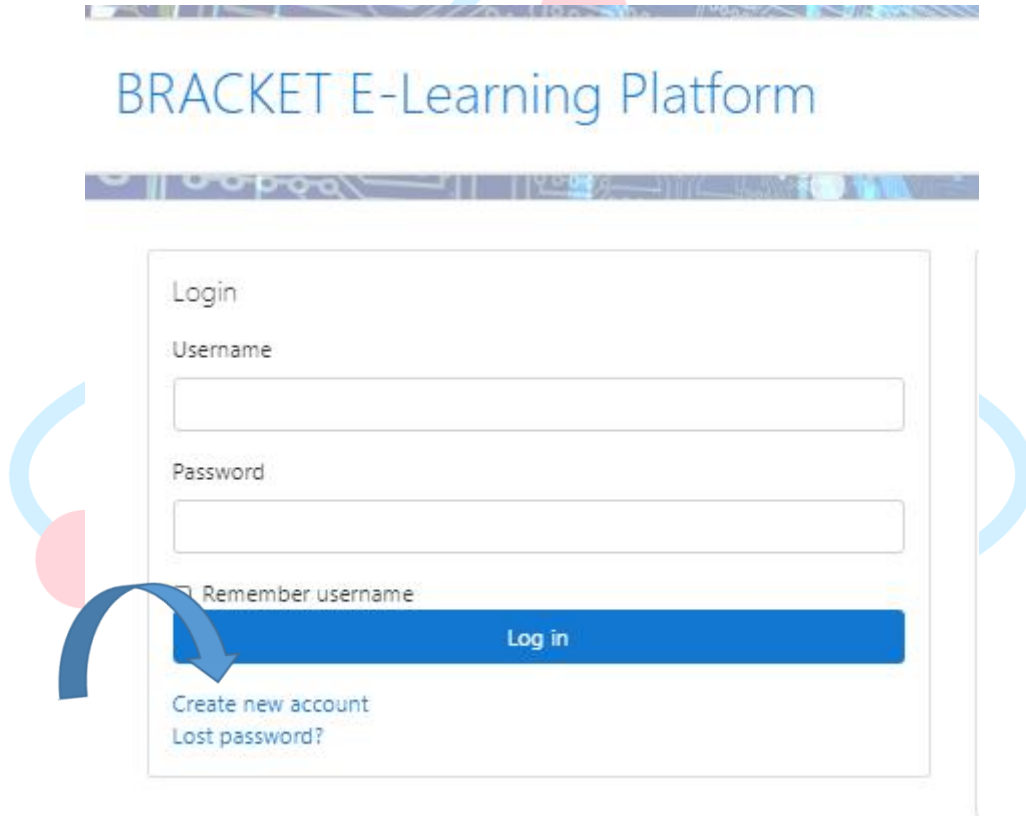
Početna stranica također uključuje uvodne videozapise za svaku od 5 nastavnih jedinica.



Cjelokupni materijali za obuku dostupni su nakon prijave.

Napravite korisnički račun

Ako ste **novi korisnik**, kliknite na “Stvori novi korisnički račun” u polju za prijavu.



BRACKET E-Learning Platform

Login

Username

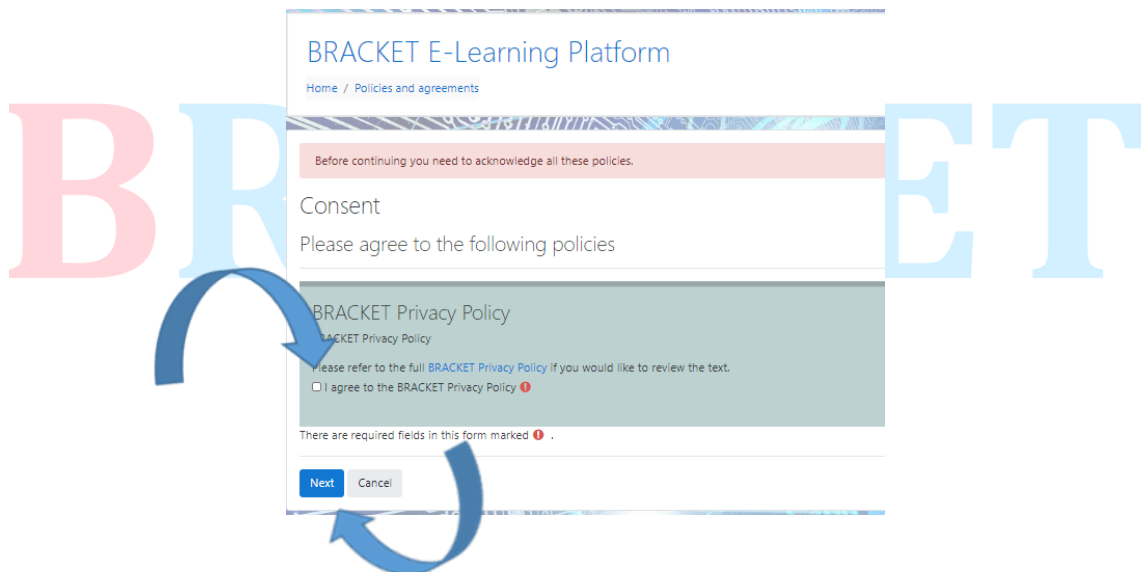
Password

Remember username

Log in

Create new account  
Lost password?

Prije nego što nastavite, trebali biste prihvatiti Pravila o privatnosti BRACKET-a označivši polje “Slažem se s Pravilima o privatnosti BRACKET-a”, a zatim kliknite “Next” (Dalje).



BRACKET E-Learning Platform

Home / Policies and agreements

Before continuing you need to acknowledge all these policies.

Consent

Please agree to the following policies

BRACKET Privacy Policy

BRACKET Privacy Policy

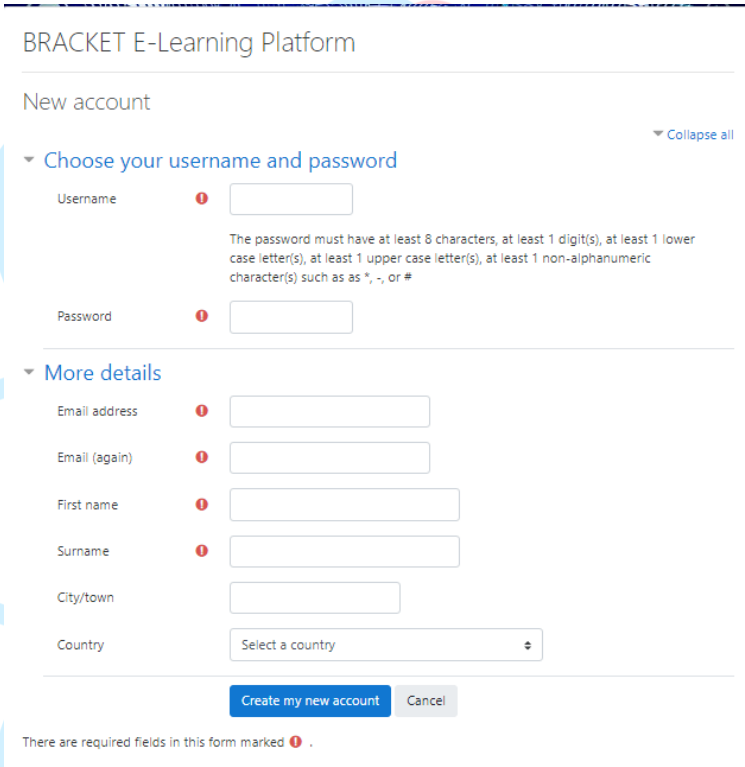
Please refer to the full [BRACKET Privacy Policy](#) if you would like to review the text.

I agree to the BRACKET Privacy Policy

There are required fields in this form marked with a red dot .

Next Cancel

Nakon što prihvatite Pravila o privatnosti BRACKET-a, od vas će se zatražiti da odaberete svoje korisničko ime i lozinku, kao i neke dodatne informacije: e-adresu, ime i prezime. Ime i prezime koje navedete bit će osobni podaci koji će se pojaviti na certifikatima o završenom tečaju.



BRACKET E-Learning Platform

New account ▼ Collapse all

▼ Choose your username and password

Username

Password

The password must have at least 8 characters, at least 1 digit(s), at least 1 lower case letter(s), at least 1 upper case letter(s), at least 1 non-alphanumeric character(s) such as %, -, or #

▼ More details

Email address

Email (again)

First name

Surname

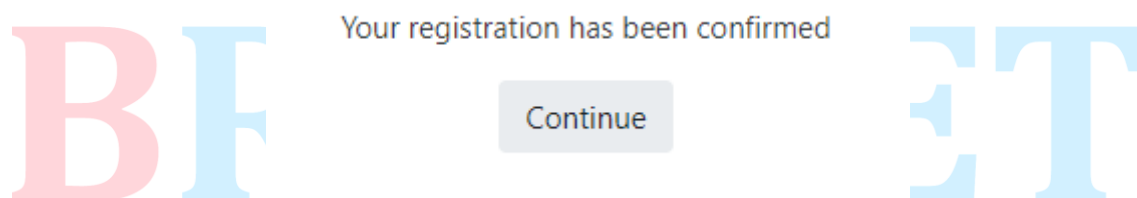
City/town

Country

There are required fields in this form marked !.

Da biste dovršili registraciju, morate potvrditi svoju adresu e-pošte. Primit ćete poruku s poveznicom za aktiviranje na adresu e-pošte koju ste naveli prilikom registracije. Kada kliknete na poveznicu, vaš će se račun aktivirati. Ako ne primite e-poštu o registraciji, provjerite mapu s neželjenom poštom (spam).

Kada kliknete na poveznicu za aktiviranje, pojavit će se poruka:

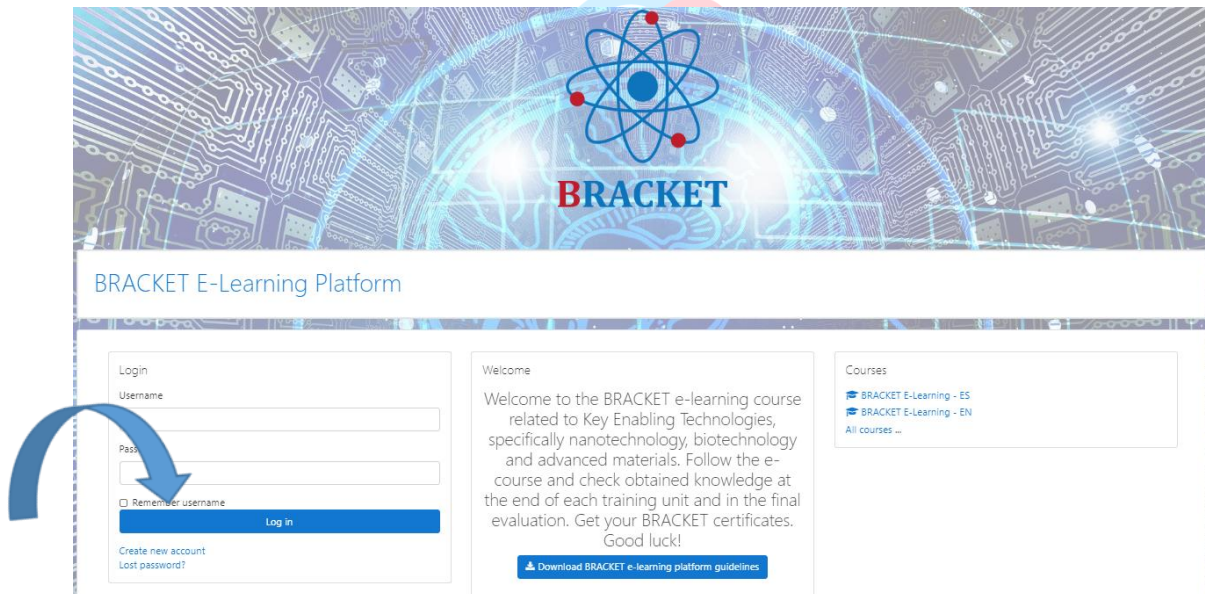


To znači da je vaš račun uspješno kreiran.



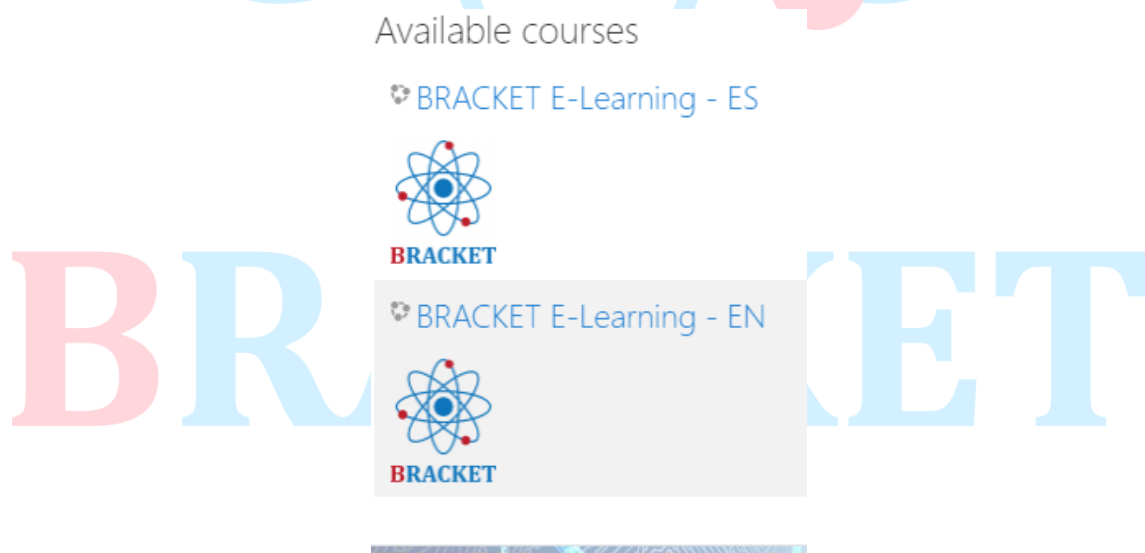
## Prijava

Ako već imate račun, možete se prijaviti na platformu za e-učenje unoseći svoje korisničko ime i lozinku u polje “Prijava” i kliknuti na “Prijava”(Log in).



## Unutar platforme za e-učenje

Nakon prijave, pristupit ćete na početni zaslon, gdje se osim sadržaja koji ste vidjeli prije prijave, na dnu stranice nalazi popis dostupnih tečajeva, npr.:



Kliknite tečaj koji vas zanima i započnite s učenjem. Možete odabrati i više tečajeva ako želite sudjelovati u e-učenju na više jezika.

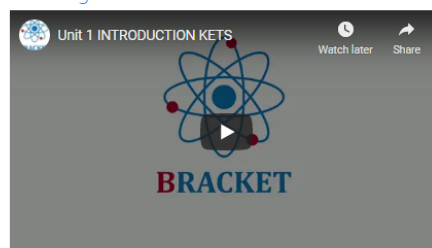
## Unutar tečaja e-učenja

Dobrodošli na BRACKET tečaj e-učenja koji se odnosi na ključne napredne tehnologije, posebno nanotehnologiju, biotehnologiju i napredne materijale. Slijedite e-tečaj i provjerite stečeno znanje na kraju svake nastavne jedinice i u završnoj procjeni. Preuzmite svoj BRACKET certifikat. Sretno!

Kao što već znate, tečaj e-učenja uključuje 5 nastavnih jedinica iste strukture. Jedinica započinje uvodnim videom, predgovorom, uvodom i ishodima učenja.

Ako ste se zainteresirali, pozivamo vas da istražite riznicu unutar određene jedinice i nastavite s obukom klikom na “Prikaži sadržaj”.

### Unit 1 – Introduction to Key Enabling Technologies



- Preface
- Introduction
- Learning outcomes

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View Content

Modules: Book: 1 Files: 2 SCORM package: 1 Quizzes: 2 Custom certificate: 1

Kada kliknete na “Prikaži sadržaj”, bit ćete preusmjereni na novu stranicu s dostupnim dodatnim aktivnostima, jednakim za svaku jedinicu.

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Interested? Explore the treasures and continue to the training!

- Learning Unit 1 main training content
- Unit 1 - Supporting presentation (download)
- Unit 1 - Supporting presentation (online)
- Download Unit 1 to your desktop
- Consolidation questions
- Unit 1 Evaluation
- Complete the evaluation to issue a certificate**
- Certificate Unit 1
- Restrictions** Not available unless: You achieve a required score in Unit 1 Evaluation

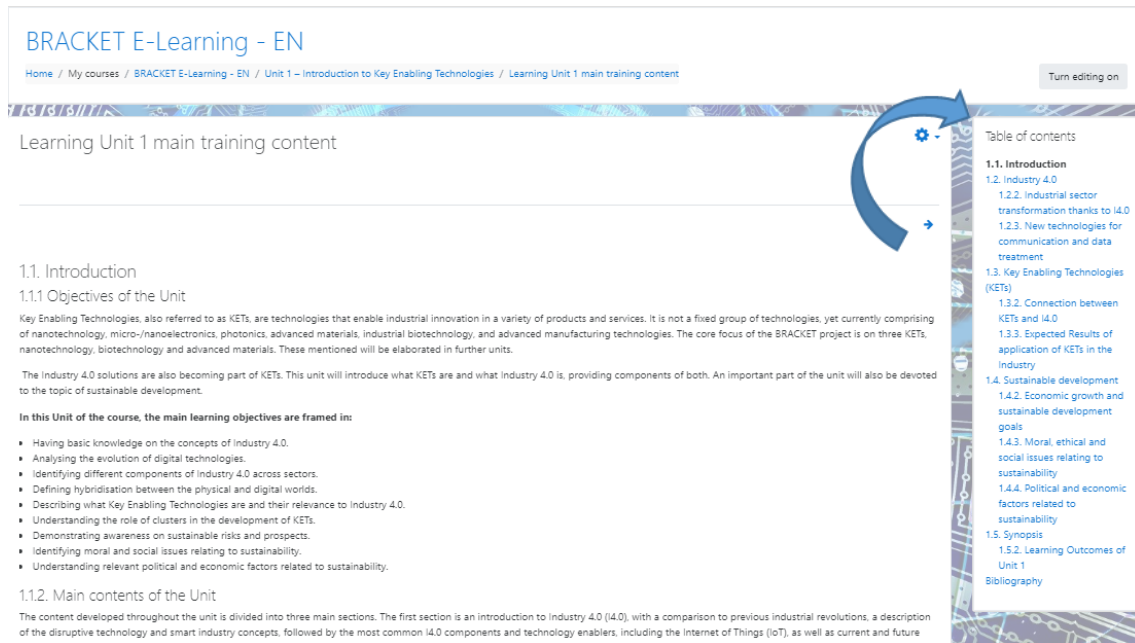
→FORUM

Jump to...

Unit 2 – Nanotechnology



U okviru prve aktivnosti nastaviti ćete s glavnim sadržajem treninga, podijeljenim na nastavne teme, uključujući ishode učenja te s popisom literature na kraju. Da bi vam se olakšalo snalaženje, na desnoj strani zaslona nalazi se izbornik sadržaja nastavne jedinice.



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Turn editing on

Learning Unit 1 main training content

1.1. Introduction

1.1.1 Objectives of the Unit

Key Enabling Technologies, also referred to as KETs, are technologies that enable industrial innovation in a variety of products and services. It is not a fixed group of technologies, yet currently comprising of nanotechnology, micro-/nanoelectronics, photonics, advanced materials, industrial biotechnology, and advanced manufacturing technologies. The core focus of the BRACKET project is on three KETs, nanotechnology, biotechnology and advanced materials. These mentioned will be elaborated in further units.

The Industry 4.0 solutions are also becoming part of KETs. This unit will introduce what KETs are and what Industry 4.0 is, providing components of both. An important part of the unit will also be devoted to the topic of sustainable development.

In this Unit of the course, the main learning objectives are framed in:

- Having basic knowledge on the concepts of Industry 4.0.
- Analysing the evolution of digital technologies.
- Identifying different components of Industry 4.0 across sectors.
- Defining hybridisation between the physical and digital worlds.
- Describing what Key Enabling Technologies are and their relevance to Industry 4.0.
- Understanding the role of clusters in the development of KETs.
- Demonstrating awareness on sustainable risks and prospects.
- Identifying moral and social issues relating to sustainability.
- Understanding relevant political and economic factors related to sustainability.

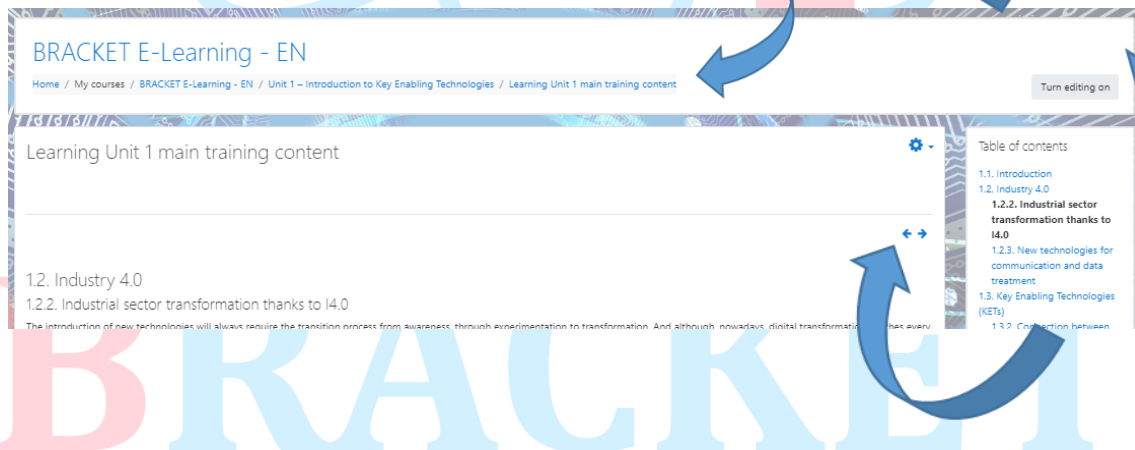
1.1.2. Main contents of the Unit

The content developed throughout the unit is divided into three main sections. The first section is an introduction to Industry 4.0 (I4.0), with a comparison to previous industrial revolutions, a description of the disruptive technology and smart industry concepts, followed by the most common I4.0 components and technology enablers, including the Internet of Things (IoT), as well as current and future

Table of contents

- 1.1. Introduction
- 1.2. Industry 4.0
  - 1.2.2. Industrial sector transformation thanks to I4.0
  - 1.2.3. New technologies for communication and data treatment
- 1.3. Key Enabling Technologies (KETs)
  - 1.3.2. Connection between KETs and I4.0
  - 1.3.3. Expected Results of application of KETs in the Industry
- 1.4. Sustainable development
  - 1.4.2. Economic growth and sustainable development goals
  - 1.4.3. Moral, ethical and social issues relating to sustainability
  - 1.4.4. Political and economic factors related to sustainability
- 1.5. Synopsis
- 1.5.2. Learning Outcomes of Unit 1
- Bibliography

Možete se vratiti natrag ili prijeći na drugi sadržaj jedinice pomoću plavih strelica “natrag” (back) – “sljedeće” (next) ili kroz izbornik. Također se možete vratiti na aktivnosti druge jedinice putem navigacije na gornjem zaslonu.



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Turn editing on

Learning Unit 1 main training content

1.2. Industry 4.0

1.2.2. Industrial sector transformation thanks to I4.0

The introduction of new technologies will always require the transition concept from awareness, through experimentation to transformation. And although nowadays digital transformation has already

Table of contents

- 1.1. Introduction
- 1.2. Industry 4.0
  - 1.2.2. Industrial sector transformation thanks to I4.0
  - 1.2.3. New technologies for communication and data treatment
- 1.3. Key Enabling Technologies (KETs)
  - 1.3.2. Connection between

Uz glavni sadržaj obuke, dostupna je prateća prezentacija koju možete preuzeti na radnu površinu ili je možete pregledati online.

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Complete the evaluation to issue a certificate

- Certificate Unit 1

Not available unless: You achieve a required score in Unit 1 Evaluation

→FORUM  Unit 2 - Nanotechnology

Ako odlučite pregledati prateću prezentaciju online, ona će se otvoriti u novom prozoru i izgledati otprilike ovako:

Menu

- Boosting a novel and innovative t...
- Boosting a novel and innovative t...
  - 1.1. Introduction
    - 1.1. From Industry 1.0 to Industry ...
    - 1.1. Industry 4.0 main components
    - 1.1. Smart factory: Bosch
    - 1.1. Factory of the future
  - Synopsis 1.1.
- Boosting a novel and innovative t...
  - 1.2. Introduction
  - Introduction
  - 1.2. Overview of KETs
  - 1.2. Synopsis
- Boosting a novel and innovative t...
  - 1.3. Introduction
  - 1.3. The concept of sustainable d...
  - 1.3. Economic growth and sustai...
- Untitled Slide
- 1.3. Moral and social issues
- 1.3. Political and economic factor...
- 1.3. Synopsis

## BOOSTING A NOVEL AND INNOVATIVE TRAINING APPROACH OF KEY ENABLING TECHNOLOGIES

### UNIT 1. INTRODUCTION TO KEY ENABLING TECHNOLOGIES

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← PREV NEXT →

Svaka jedinica također uključuje konsolidacijska pitanja koja služe u svrhu revizije.

#### BRACKET E-Learning - EN

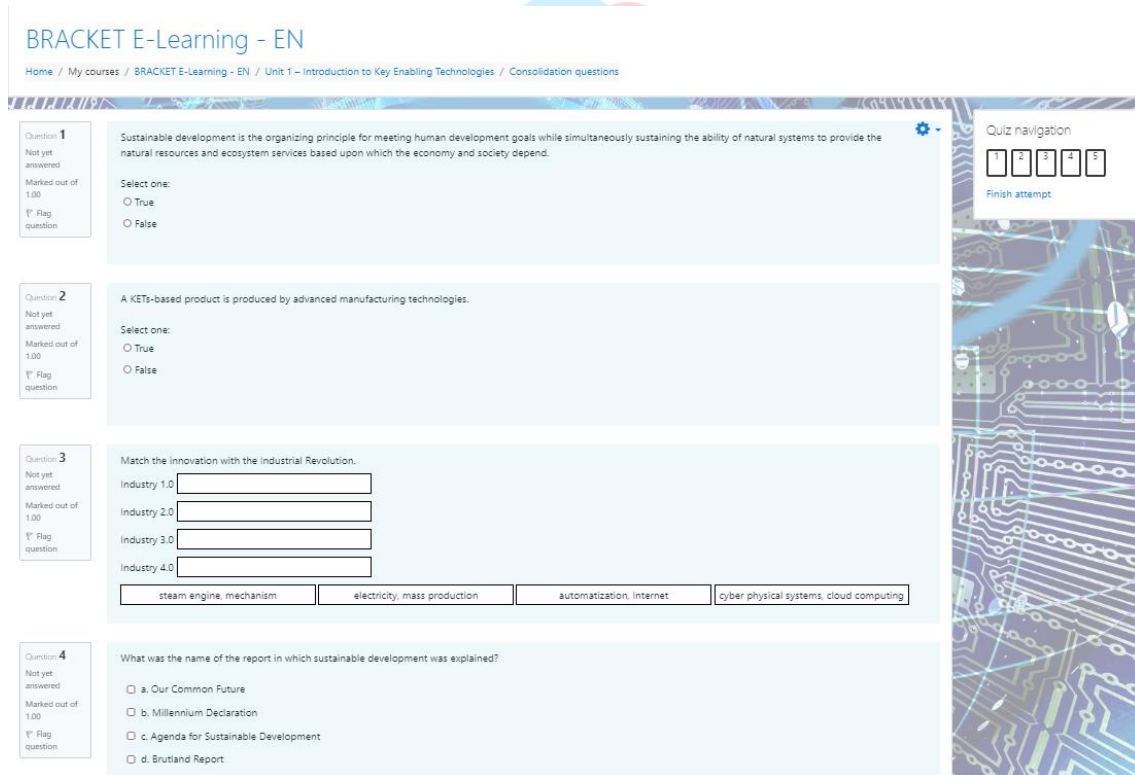
Home / My courses / BRACKET E-Learning - EN / Unit 1 - Introduction to Key Enabling Technologies / Consolidation questions

#### Consolidation questions

This is a self-assessment and will not affect your evaluation score. Multiple attempts are possible.

Attempt quiz now

Nećete nužno vidjeti ista pitanja u svakom pokušaju, jer su odabrana iz skupine pitanja o temi nastavne jedinice. Vrsta pitanja, između ostalog, uključuju Točno i Netočno, Povuci i grupiraj ili Višestruki izbor. Evo primjera iz jedinice 1:



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**Question 1**  
Not yet answered  
Marked out of 1.00  
Flag question

Sustainable development is the organizing principle for meeting human development goals while simultaneously sustaining the ability of natural systems to provide the natural resources and ecosystem services based upon which the economy and society depend.

Select one:

True

False

**Question 2**  
Not yet answered  
Marked out of 1.00  
Flag question

A KETs-based product is produced by advanced manufacturing technologies.

Select one:

True

False

**Question 3**  
Not yet answered  
Marked out of 1.00  
Flag question

Match the innovation with the Industrial Revolution.

Industry 1.0:

Industry 2.0:

Industry 3.0:

Industry 4.0:

steam engine, mechanism    electricity, mass production    automatization, Internet    cyber physical systems, cloud computing

**Question 4**  
Not yet answered  
Marked out of 1.00  
Flag question

What was the name of the report in which sustainable development was explained?

a. Our Common Future

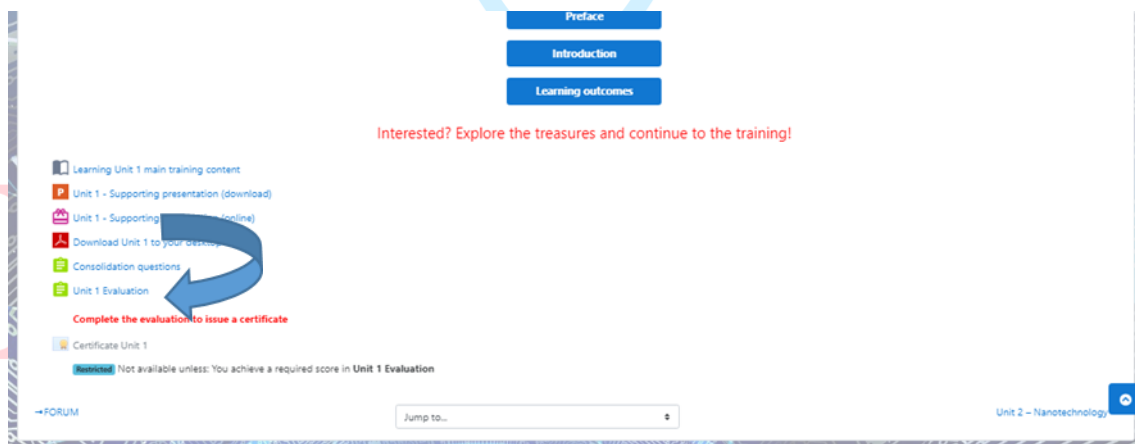
b. Millennium Declaration

c. Agenda for Sustainable Development

d. Brundtland Report

Quiz navigation: 1 2 3 4 5  
Finish attempt

Ako želite dobiti certifikat, bit će potrebno uspješno dovršiti Procjenu nastavne jedinice, koja je dostupna na samom kraju popisa aktivnosti pojedine jedinice.



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**Remove** Not available unless: You achieve a required score in Unit 1 Evaluation

→FORUM

Jump to...

Unit 2 - Nanotechnology

Imate 2 pokušaja za svaku procjenu. Nakon što predate odgovore, možete provjeriti točne i netočne odgovore, uz dostavljene povratne informacije i dobivenu ocjenu.

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### Unit 1 Evaluation

Complete the evaluation to issue a certificate

Summary of your previous attempts

Attempt	State	Marks / 5.00	Grade / 10.00	Review
1	Finished Submitted Thursday, 25 February 2021, 4:30 PM	4.88	9.76	Review

Highest grade: 9.76 / 10.00.

Re-attempt quiz

S rezultatom od najmanje 70%, sustav će izdati personalizirani certifikat s podacima koje ste unijeli u svoj profil. Primjer certifikata:

Issue date: XXX



## CERTIFICATE OF ACHIEVEMENT

*This is to certify that*  
**REGISTERED NAME**  
*successfully completed Unit 1 "Introduction to KETs" of the online course*  
*Boosting a novel and innovative tRAining approaCh of Key Enabling Technologies*  
(project number: 2018-1-HR01-KA202-047493)  
*with a score of XX% in the Unit 1 Evaluation, gaining 0,5 ECVET points.*



## Završna procjena

Na kraju tečaja e-učenja postoji mogućnost dobivanja certifikata o završenom cijelom tečaju, odnosno svih 5 nastavnih jedinica. Kao i kod dobivanja certifikata za jednu nastavnu jedinicu, moguća su dva pokušaja, prag prolaska ostaje 70%, a podaci navedeni u profilu vašeg računa bit će unijeti u certifikat. Razlika je u broju pitanja kojih ima ukupno 48, a koja također proizlaze iz tematskih grupa pitanja, provjeravajući znanje stečeno u svih 5 nastavnih jedinica. Primjeri pitanja:

# BRACKET

Question 45  
Not yet answered  
Marked out of 1.00  
Flag question

The next EU research and innovation investment programme (2021-2027) [ ] is an ambitious €100 billion research and innovation programme to succeed Horizon 2020. Horizon Europe will incorporate [ ] and [ ] missions to increase the effectiveness of funding by pursuing clearly defined targets. Key novelties in Horizon Europe are:

- Support breakthrough [ ]
- Create more impact through mission-orientation and citizens' [ ]
- Strengthen international [ ]
- Reinforce [ ]
- [ ] the funding landscape
- Encourage [ ]

[ innovation ] [ openness ] [ Horizon Europe ] [ involvement ] [ cooperation ] [ participation ] [ Rationalize ] [ research ]

Question 46  
Not yet answered  
Marked out of 1.00  
Flag question

Which of the following is not the way e-leaders may address diversity?

- a. Keeping virtual workers engaged
- b. Promoting specific activities to enhance team-building
- c. Promoting a sense of remoteness
- d. Learning how to handle with people from different cultures

Konačni certifikat će se izdati ako postignete najmanje 70% u završnoj procjeni. Moguća razina stručnosti predstavljena je u donjoj tablici:

STRUČAN	postizanje 85% -100% rezultata na završnoj ocjeni tečaja
SPOSOBAN	postizanje 70% -84% rezultata na završnoj ocjeni tečaja
POTREBNO POBOLJŠANJE	postizanje rezultata ispod 70% u završnoj ocjeni tečaja

Ovo je primjer BRACKET certifikata koji se izdaje nakon uspješnog završetka završne procjene:

Issue date: **XXX**



## CERTIFICATE OF ACHIEVEMENT

*This is to certify that*  
**REGISTERED NAME**

*successfully completed the online course*

*Boosting a novel and innovative tRAining approaCh of Key Enabling Technologies (project number: 2018-1-HR01-KA202-047493)*

*with a score of **XX%** in the final assessment, gaining 4,5 ECVET points.*

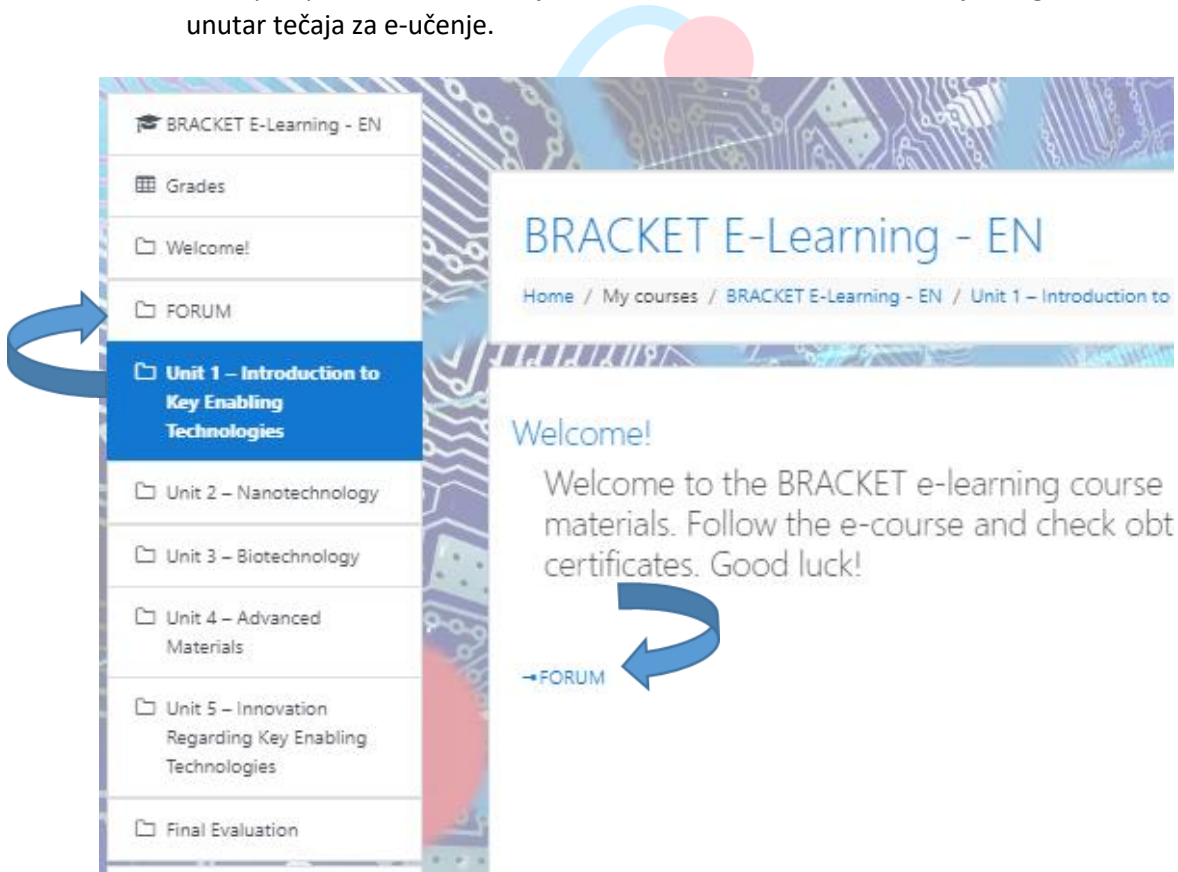
B

T



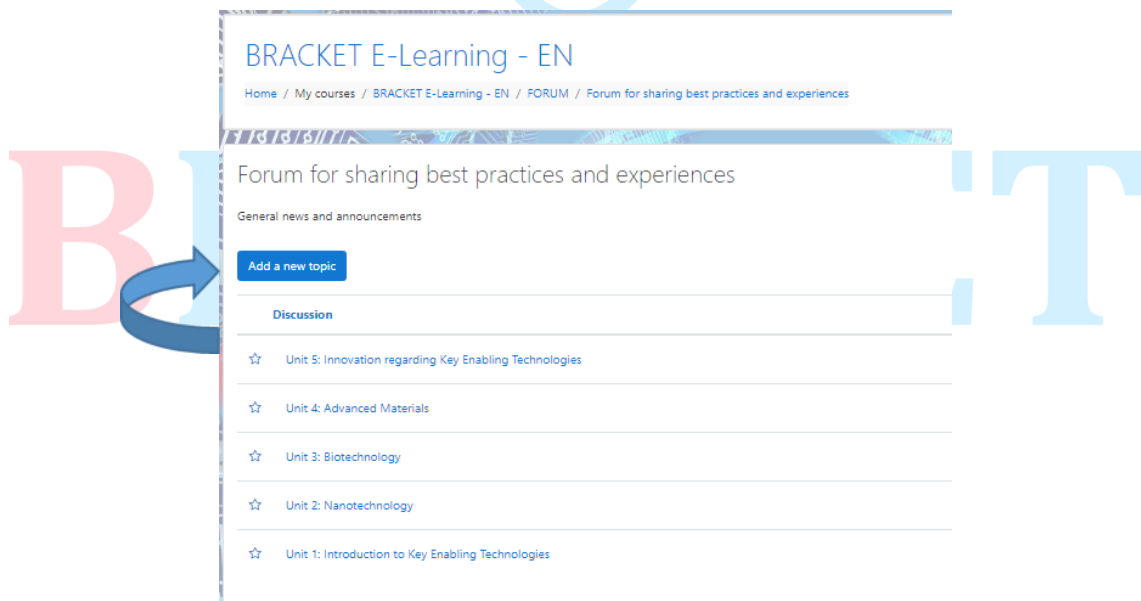
## Preostale funkcije platforme za e-učenje

- Forum: ovdje možete podijeliti najbolje prakse i iskustva o temama tečaja. Forum je dostupan putem izbornika s lijeve strane zaslona i na vrhu bilo koje druge stranice unutar tečaja za e-učenje.



The screenshot shows the BRACKET E-Learning - EN interface. On the left is a navigation menu with the following items: BRACKET E-Learning - EN, Grades, Welcome!, FORUM, Unit 1 – Introduction to Key Enabling Technologies (highlighted in blue), Unit 2 – Nanotechnology, Unit 3 – Biotechnology, Unit 4 – Advanced Materials, Unit 5 – Innovation Regarding Key Enabling Technologies, and Final Evaluation. A blue arrow points from the FORUM item in the menu to the main content area. The main content area displays the title 'BRACKET E-Learning - EN', a breadcrumb trail 'Home / My courses / BRACKET E-Learning - EN / Unit 1 – Introduction to', and a 'Welcome!' message: 'Welcome to the BRACKET e-learning course materials. Follow the e-course and check out certificates. Good luck!'. A blue arrow points from the 'FORUM' link below the welcome message to the right.

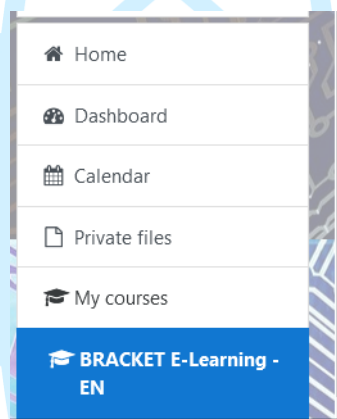
Odaberite između unaprijed definiranih tema ili dodajte novu temu.



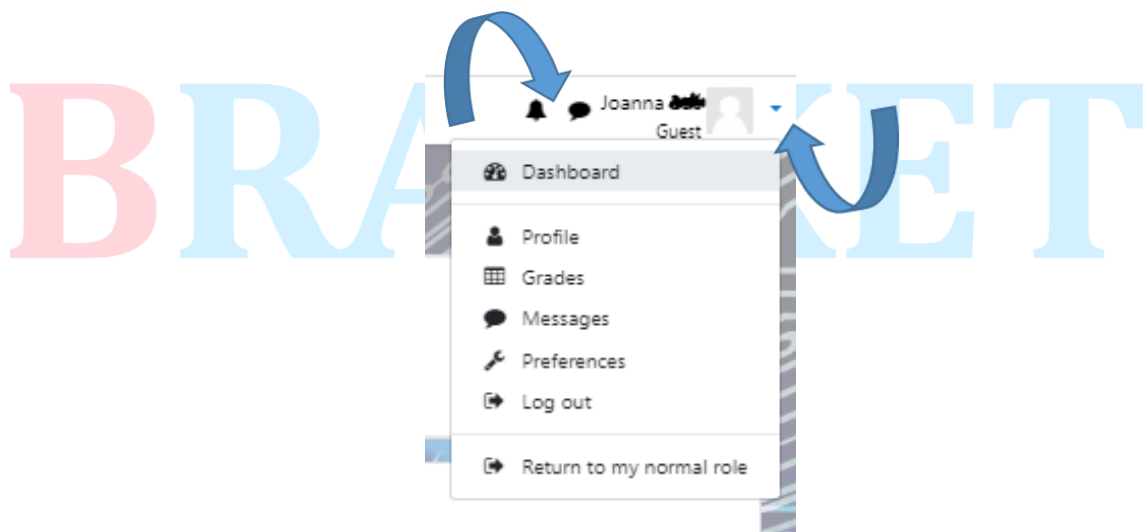
The screenshot shows the forum page for 'BRACKET E-Learning - EN'. The breadcrumb trail is 'Home / My courses / BRACKET E-Learning - EN / FORUM / Forum for sharing best practices and experiences'. The page title is 'Forum for sharing best practices and experiences'. Below the title, there is a section for 'General news and announcements' with an 'Add a new topic' button. Underneath is a 'Discussion' section with a list of topics, each with a star icon: Unit 5: Innovation regarding Key Enabling Technologies, Unit 4: Advanced Materials, Unit 3: Biotechnology, Unit 2: Nanotechnology, and Unit 1: Introduction to Key Enabling Technologies. A large blue arrow points from the 'Add a new topic' button to the right.



- Glavni izbornik, smješten na lijevoj strani zaslona, uključuje sljedeće gumbе u kronološkom slijedu:
  - Home, koja je odredišna stranica tečaja e-učenja nakon prijave.
  - Nadzorna ploča, koja prikazuje kojim ste tečajevima nedavno pristupili i popis dostupnih tečajeva (na kojim jezicima).
  - Kalendar, dodatni alat u kojem možete označiti različite događaje koje planirate ili su povezani s ovim tečajem.
  - Privatne datoteke, odjeljak u koji možete prenijeti vlastite datoteke na temu tečaja kako biste sve zadržali na jednom mjestu.
  - Moji tečajevi, mjesto gdje ćete vidjeti sve dostupne tečajeve i gdje možete brzo doći do e-učenja na drugom jeziku.

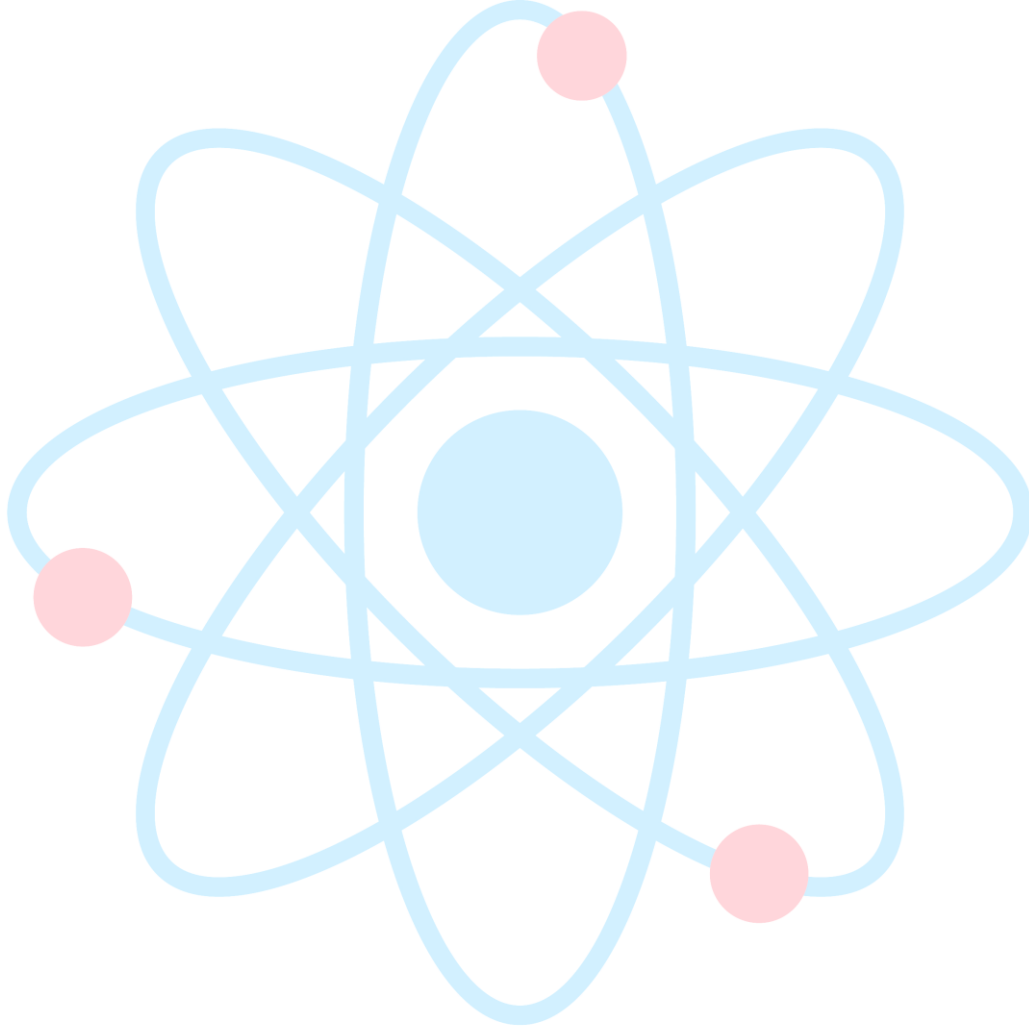


- Vaš Profil, koji se nalazi u desnom kutu zaslona nakon klika na plavu "strelicu". Ovdje možete pregledati svoje podatke, posebno u svrhu certificiranja.
- Postavke obavijesti koje se mogu podesiti nakon klika na ikonu crnog "zvona". Možete se odlučiti za primanje obavijesti, na primjer ako se pojave novi postovi na forumu.
- Poruke predstavljene ikonom crnog "oblaka" mogu se slati različitim prijavljenim korisnicima ili unutar privatnih grupa korisnika.



Sretno!

To je sve. Ako imate dodatnih pitanja, obratite se projektnim [Partnerima](#), koji će vam rado pomoći.



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